Data Analysis Logbook
Stephen Haber and Victor Menaldo
Do Natural Resources Fuel Authoritarianism

NOTE TO USERS:
Some variable names were abbreviated during the writing of stata scripts. For example, Total Oil Income Per Capita was sometimes abbreviated in the script as TOI. These are intuitive.

Contents:

Algeria Unit Roots and cointegration tests and ECM page 4

Angola Unit Roots and cointegration tests and ECM page 21

Bahrain Unit Roots and cointegration tests and ECM page 40

Chile Unit Roots and cointegration tests and ECM page 59

Ecuador Unit Roots and cointegration tests and ECM page 76

Equatorial Guinea Unit Roots and cointegration tests and ECM page 94

Gabon Unit Roots and cointegration tests and ECM page 120

Indonesia Unit Roots and cointegration tests and ECM page 137

Iran Unit Roots and cointegration tests and ECM page 154

Kuwait Unit Roots and cointegration tests and ECM page 178

Mexico Unit Roots and cointegration tests and ECM page 193

Nigeria Unit Roots and cointegration tests and ECM page 211

Norway Unit Roots and cointegration tests and ECM page 232

Oman Unit Roots and cointegration tests and ECM page 250

Trinidad Unit Roots and cointegration tests and ECM page 269

Venezuela Unit Roots and cointegration tests and ECM page 284

Yemen Unit Roots and cointegration tests and ECM page 303

Zambia Unit Roots and cointegration tests and ECM page 324

Fiscal Reliance BIC statistics for dist lag models page 341

Table 4, All Columns, Westerlund Tests, ECM, Regressions page 347

Total Oil Income BIC stats for dist lag models page 373

Table 5, Column 1 Westerlund, Tests, ECM Model, Robustness Tests page 379

Total Oil Income BIC stats, 72 to 06 page 397

Table 5, Column 2, Westerlund, Tests, ECM Model, Robustness Tests page 403

Total Oil Income BIC Stats, Threshold 1 page 420

Table 5, Column 3, Westerlund, Tests, ECM Model, Robustness Tests page 426

Total Oil Income BIC Stats, Threshold 2 page 436

Table 5, Column 4, Westerlund, Tests, ECM Model, Robustness Tests page 442

Total Oil Income, BIC Stats, Threshold 3 page 452

Table 5, Column 5 Westerlund, Tests, ECM Model, Robustness Tests page 458

Total Oil Income BIC stats, Latam page 464

Table 6, Column 1 Westerlund, Tests, ECM Model, Robustness Tests page 470

Total Oil Income BIC stats, Subsaharan Africa page 476

Table 6, Column 2 Westerlund, Tests, ECM Model, Robustness Tests page 482

Total Oil Income BIC stats, MENA page 490

Table 6, Column 3 Westerlund, Tests, ECM Model, Robustness Tests page 496

Total Oil Income BIC Stats, East Europe, Central Asia page 503

Table 6, Column 4 Westerlund, Tests, ECM Model, Robustness Tests page 509

Total Oil Income BIC Stats, Southeast Asia page 518

Table 7, Column 1 Westerlund, Tests, ECM Model, Robustness page 524

Total Oil Income BIC Stats, Unequal Countries page 533

Table 7, Column 2 Westerlund, Tests, ECM Model, Robustness page 539

Total Oil Income BIC Stats, Very Unequal Countries page 548

Table 7, Robustness for Column 2 page 554

Table 7, Robustness for Columns 1 & 2 page 560

Total Oil Income BIC Stats, Poor Countries page 574

Table 7, Column 3 Westerlund, Tests, ECM Model, Robustness page 580

Total Oil Income BIC Stats, Very Poor Countries page 589

Table 7, Column 4 Westerlund, Tests, ECM Model, Robustness page 595

Total Oil Income BIC Stats, Wealthy Countries page 604

Table 7, Robustness Tests for Columns 3 & 4, Part 1 page 610

Table 7, Robustness Tests for Columns 3 & 4, Part 2 page 618

Table 8, All Difference in Difference Models including IV GMM page 630

Conditional Logit Dynamic Panel Models page 656

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE ALGERIA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

ALGERIAN UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        43

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.762            -4.214            -3.528            -3.197
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2114

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.3564676   .1290755    -2.76   0.009    -.6175475   -.0953878
         LD. |   .1418915    .162699     0.87   0.388    -.1871983    .4709813
      _trend |   .4716368   .1600114     2.95   0.005     .1479833    .7952903
       _cons |  -3.715287     2.6054    -1.43   0.162    -8.985206    1.554632
------------------------------------------------------------------------------
.
.
```

Polity_s_FD

```
dfuller D.polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.724            -4.224            -3.532            -3.199
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0006

------------------------------------------------------------------------------
D2.polity_s  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  D.polity_s |
         L1. |   -1.11717   .2364807    -4.72   0.000      -1.5959   -.6384401
         LD. |   .0597134   .1627115     0.37   0.716    -.2696787    .3891055
      _trend |   .1308842   .1122619     1.17   0.251    -.0963782    .3581465
       _cons |   -1.61493   2.791513    -0.58   0.566    -7.266053    4.036194
------------------------------------------------------------------------------

dfuller D.polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.558            -3.634            -2.952            -2.610
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0002

------------------------------------------------------------------------------
 D2.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         LD. |  -1.042808   .2287634    -4.56   0.000    -1.505526   -.5800905
        LD2. |   .0214041   .1600915     0.13   0.894    -.3024115    .3452197
       _cons |   1.241438   1.344145     0.92   0.361    -1.477351    3.960227
------------------------------------------------------------------------------

.
```

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        33

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.411            -4.306            -3.568            -3.221
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0021

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.3683267   .0835005    -4.41   0.000    -.5391045   -.1975489
         LD. |    .243698   .1094282     2.23   0.034     .0198921    .4675038
      _trend |   .5031995    .139916     3.60   0.001     .2170392    .7893597
       _cons |   5.417573   4.201376     1.29   0.207    -3.175207    14.01035
------------------------------------------------------------------------------

.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        33

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.489            -3.696            -2.978            -2.620
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1183

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.2074487   .0833607    -2.49   0.019    -.3776939   -.0372035
         LD. |   .1634784   .1266598     1.29   0.207    -.0951955    .4221522
       _cons |   10.33146   4.697245     2.20   0.036     .7384011    19.92451
------------------------------------------------------------------------------

.
.
.
```

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        30

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.479            -4.334            -3.580            -3.228
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.274373   .1966846    -6.48   0.000    -1.678664    -.870082
         LD. |   .3681993   .1180055     3.12   0.004     .1256356     .610763
      _trend |   .1875188    .157317     1.19   0.244    -.1358508    .5108884
       _cons |  -5.074773   4.618182    -1.10   0.282    -14.56758    4.418036
------------------------------------------------------------------------------

.
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        30

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.320            -3.716            -2.986            -2.624
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.230823   .1947617    -6.32   0.000    -1.630442   -.8312055
         LD. |   .3743132   .1188091     3.15   0.004     .1305369    .6180894
       _cons |   .0572113   1.683574     0.03   0.973    -3.397197     3.51162
------------------------------------------------------------------------------

.
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        41
maximum lag: 1                                      F(  1,    39)  =      6.50
                                                    Prob > F       =    0.0148

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .3916934   .1536375     2.55   0.015     .0809322    .7024546
       _cons |  -.3994805    5.88012    -0.07   0.946    -12.29315    11.49418
------------------------------------------------------------------------------

predict residual, res
(4 missing values generated)

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        33

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.816            -4.306            -3.568            -3.221
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1910

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.3551283   .1260984    -2.82   0.009    -.6130285    -.097228
         LD. |   .0801343   .1636639     0.49   0.628     -.254596    .4148647
      _trend |   .3228113   .1597527     2.02   0.053    -.0039196    .6495422
       _cons |  -6.808121   4.506211    -1.51   0.142    -16.02436    2.408115
------------------------------------------------------------------------------
```

-3.4959 with trend at the 10 percent level. Therefore, there is no evidence of co-integration.

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

Now we try the ECM Co-integration test approach

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      37
-------------+------------------------------           F(  3,    33) =    0.43
       Model |  106.177364     3  35.3924548           Prob > F      =  0.7340
    Residual |  2726.25507    33  82.6137899           R-squared     =  0.0375
-------------+------------------------------           Adj R-squared = -0.0500
       Total |  2832.43243    36  78.6786787           Root MSE      =  9.0892

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0887199   .1022851    -0.87   0.392    -.2968205    .1193808
Fiscal_Rel~e |
         L1. |   .0281272   .0843921     0.33   0.741    -.1435697    .1998242
         D1. |   .1137692   .1290716     0.88   0.384    -.1488289    .3763673
       _cons |   1.512256   4.081234     0.37   0.713    -6.791077    9.815589
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.006               1                   0.9359
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  7.809182  Chi-sq( 9)  P-value =  .5535

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3170344   .8337044    -0.38   0.706    -2.013219     1.37915
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    33) =    0.38
            Prob > F =    0.6854

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      36
-------------+------------------------------           F(  3,    32) =    0.17
       Model |  44.0248173     3  14.6749391           Prob > F      =  0.9168
    Residual |  2786.53074    32  87.0790856           R-squared     =  0.0156
-------------+------------------------------           Adj R-squared = -0.0767
       Total |  2830.55556    35  80.8730159           Root MSE      =  9.3316

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0625749   .1018973    -0.61   0.543    -.2701329    .1449831
Fiscal_Rel~e |
         L1. |  -.0037318   .0848053    -0.04   0.965    -.1764746     .169011
         LD. |   .0003714   .1244376     0.00   0.998    -.2530998    .2538425
       _cons |   2.805753    4.22809     0.66   0.512    -5.806585    11.41809
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.013               1                   0.9089
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  6.048977  Chi-sq( 9)  P-value =   .735

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0596369   1.398589     0.04   0.966    -2.789197     2.90847
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    32) =    0.24
            Prob > F =    0.7856

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      32
-------------+------------------------------           F(  3,    28) =    0.37
       Model |  106.555854     3   35.518618           Prob > F      =  0.7779
    Residual |  2715.31915    28  96.9756838           R-squared     =  0.0378
-------------+------------------------------           Adj R-squared = -0.0653
       Total |    2821.875    31  91.0282258           Root MSE      =  9.8476

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0834028   .1184124    -0.70   0.487    -.3259597    .1591541
Fiscal_Rel~e |
         L1. |   .0271787   .1151602     0.24   0.815    -.2087163    .2630737
        L2D. |  -.0948845   .1368569    -0.69   0.494    -.3752231    .1854542
       _cons |   2.018722   5.387365     0.37   0.711    -9.016794    13.05424
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.021               1                   0.8855
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  2.188447  Chi-sq( 9)  P-value =  .9881

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.325873   1.206415    -0.27   0.789    -2.797102    2.145356
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    28) =    0.26
            Prob > F =    0.7731
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      31
-------------+------------------------------           F(  3,    27) =    1.41
       Model |  376.299822     3  125.433274           Prob > F      =  0.2613
    Residual |  2401.11953    27  88.9303531           R-squared     =  0.1355
-------------+------------------------------           Adj R-squared =  0.0394
       Total |  2777.41935    30  92.5806452           Root MSE      =  9.4303

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0723486   .1280764    -0.56   0.577    -.3351396    .1904423
Fiscal_Rel~e |
         L1. |  -.0021996   .1314145    -0.02   0.987    -.2718398    .2674407
        L3D. |  -.2234783    .121441    -1.84   0.077    -.4726547    .0256981
       _cons |   3.648005   5.624118     0.65   0.522    -7.891732    15.18774
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.016               1                   0.8997
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  14.16975  Chi-sq( 9)  P-value =  .1164

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0304025   1.852144     0.02   0.987    -3.769883    3.830688
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    27) =    0.29
            Prob > F =    0.7498
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      31
-------------+------------------------------           F(  3,    27) =    0.42
       Model |  125.089175     3  41.6963918           Prob > F      =  0.7370
    Residual |  2652.33018    27  98.2344511           R-squared     =  0.0450
-------------+------------------------------           Adj R-squared = -0.0611
       Total |  2777.41935    30  92.5806452           Root MSE      =  9.9113

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0458146   .1388836    -0.33   0.744    -.3307801     .239151
Fiscal_Rel~e |
         L1. |  -.0509431   .1439836    -0.35   0.726     -.346373    .2444869
        L4D. |   .0937225   .1331338     0.70   0.487    -.1794454    .3668904
       _cons |    5.33839   6.102126     0.87   0.389    -7.182137    17.85892
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  5   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.005               1                   0.9443
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  5.292264  Chi-sq( 9)  P-value =  .8081

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.111941   5.965047     0.19   0.854    -11.12733    13.35121
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    27) =    0.36
            Prob > F =    0.6997

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  3,    25) =    0.39
       Model |  123.382178     3  41.1273928           Prob > F      =  0.7623
    Residual |  2647.30748    25  105.892299           R-squared     =  0.0445
-------------+------------------------------           Adj R-squared = -0.0701
       Total |  2770.68966    28   98.953202           Root MSE      =   10.29

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0637703   .1272078    -0.50   0.621    -.3257597    .1982192
Fiscal_Rel~e |
         L1. |  -.0680226   .1293136    -0.53   0.604    -.3343491    .1983038
        L5D. |   .0447254   .1577276     0.28   0.779    -.2801206    .3695714
       _cons |   7.009557   6.437027     1.09   0.287    -6.247748    20.26686
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.053               1                   0.8180
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   3.19172  Chi-sq( 9)  P-value =  .9562

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.066683   3.608925     0.30   0.770    -6.366037    8.499402
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    25) =    0.54
            Prob > F =    0.5914
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -132.753   Log-Lik Full Model:           -132.046
D(33):                         264.093   LR(3):                           1.414
                                         Prob > LR:                       0.702
R2:                              0.037   Adjusted R2:                    -0.050
AIC:                             7.354   AIC*n:                         272.093
BIC:                           144.933   BIC':                            9.419
BIC used by Stata:             278.536   AIC used by Stata:             272.093

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -120.242   Log-Lik Full Model:           -118.296
D(28):                         236.591   LR(4):                           3.892
                                         Prob > LR:                       0.421
R2:                              0.111   Adjusted R2:                    -0.016
AIC:                             7.472   AIC*n:                         246.591
BIC:                           138.689   BIC':                           10.094
BIC used by Stata:             254.074   AIC used by Stata:             246.591

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -110.700   Log-Lik Full Model:           -107.770
D(24):                         215.540   LR(5):                           5.859
                                         Prob > LR:                       0.320
R2:                              0.177   Adjusted R2:                     0.006
AIC:                             7.585   AIC*n:                         227.540
BIC:                           133.912   BIC':                           11.147
BIC used by Stata:             235.948   AIC used by Stata:             227.540

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -100.792   Log-Lik Full Model:            -95.019
D(20):                         190.037   LR(6):                          11.548
                                         Prob > LR:                       0.073
R2:                              0.348   Adjusted R2:                     0.152
AIC:                             7.557   AIC*n:                         204.037
BIC:                           124.120   BIC':                            8.227
BIC used by Stata:             213.108   AIC used by Stata:             204.037
```

```
(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance l.4.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -90.946   Log-Lik Full Model:           -85.206
D(16):                         170.413   LR(7):                         11.478
                                         Prob > LR:                      0.119
R2:                              0.380   Adjusted R2:                    0.109
AIC:                             7.767   AIC*n:                        186.413
BIC:                           119.564   BIC':                          10.768
BIC used by Stata:             195.837   AIC used by Stata:            186.413

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -84.278   Log-Lik Full Model:           -73.461
D(13):                         146.921   LR(8):                         21.635
                                         Prob > LR:                      0.006
R2:                              0.626   Adjusted R2:                    0.396
AIC:                             7.496   AIC*n:                        164.921
BIC:                           106.738   BIC':                           3.094
BIC used by Stata:             174.741   AIC used by Stata:            164.921

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance l.6.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -77.519   Log-Lik Full Model:           -61.226
D(10):                         122.451   LR(9):                         32.587
                                         Prob > LR:                      0.000
R2:                              0.804   Adjusted R2:                    0.627
AIC:                             7.123   AIC*n:                        142.451
BIC:                            92.494   BIC':                          -5.625
BIC used by Stata:             152.409   AIC used by Stata:            142.451

(Indices saved in matrix fs_mod1)

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.
> 4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      22
-------------+------------------------------           F(  8,    13) =    2.72
       Model |  1713.56559     8  214.195698           Prob > F      =  0.0529
    Residual |  1023.93441    13  78.7641857           R-squared     =  0.6260
-------------+------------------------------           Adj R-squared =  0.3958
       Total |      2737.5    21  130.357143           Root MSE      =  8.8749

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1926557   .4162473    -0.46   0.651    -1.091903    .7065918
Fiscal_Rel~e |
         L1. |   .2865774   .4540623     0.63   0.539    -.6943646    1.267519
         D1. |   .5756061   .4030136     1.43   0.177    -.2950519    1.446264
         LD. |  -.3330494   .2762351    -1.21   0.249     -.929819    .2637203
        L2D. |  -.0823709   .2639066    -0.31   0.760    -.6525065    .4877648
        L3D. |  -.8970474   .2551715    -3.52   0.004    -1.448312    -.345783
        L4D. |   .4298813   .4558234     0.94   0.363    -.5548652    1.414628
        L5D. |  -.4794654   .2247834    -2.13   0.053    -.9650805    .0061497
       _cons |  -7.902123   15.29888    -0.52   0.614    -40.95335    25.14911
------------------------------------------------------------------------------
bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.501               1                   0.2205
---------------------------------------------------------------------------
                        H0: no serial correlation
whitetst

White's general test statistic :        22  Chi-sq(21)  P-value =  .3995

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -1.48751   1.398083    -1.06   0.307    -4.507884    1.532864
------------------------------------------------------------------------------
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    13) =    0.24
            Prob > F =    0.7871

test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance
l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0
 ( 5)  L4D.Fiscal_Reliance = 0
 ( 6)  L5D.Fiscal_Reliance = 0

       F(  6,    13) =    3.11
            Prob > F =    0.0410
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      22
-------------+------------------------------           F( 15,     6) =    7.45
       Model |  2598.09679    15  173.206453           Prob > F      =  0.0104
    Residual |  139.403208     6   23.233868           R-squared     =  0.9491
-------------+------------------------------           Adj R-squared =  0.8218
       Total |      2737.5    21  130.357143           Root MSE      =  4.8202

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.6527129   .2828507    -2.31   0.060    -1.344824    .0393978
Fiscal_Rel~e |
         L1. |  -.9048842   .3613034    -2.50   0.046    -1.788962   -.0208066
         D1. |   .1526768   .2585988     0.59   0.576    -.4800918    .7854453
         LD. |   .5693057   .2611032     2.18   0.072    -.0695908    1.208202
        L2D. |   .4510756    .228286     1.98   0.096    -.1075202    1.009671
        L3D. |  -.8289443   .2261775    -3.67   0.011    -1.382381    -.275508
        L4D. |   .1462002   .2575923     0.57   0.591    -.4841055    .7765059
        L5D. |  -.1182113   .3604602    -0.33   0.754    -1.000226    .7638029
log_gdp_pe~2 |
         L1. |  -57.23102   71.74926    -0.80   0.455    -232.7951    118.3331
REGION_DEM~E |
         L1. |   .6134871   1.267616     0.48   0.646    -2.488258    3.715232
WORLD_DEM_~E |
         L1. |   4.631615   .9174878     5.05   0.002     2.386604    6.876627
Civil_War_~h |
         L1. |  -8.233425   3.638311    -2.26   0.064    -17.13605    .6692026
log_gdp_pe~2 |
         D1. |   11.30419   59.81883     0.19   0.856    -135.0672    157.6756
REGION_DEM~E |
         D1. |  -.6431987   2.361222    -0.27   0.794      -6.4209    5.134503
WORLD_DEM_~E |
         D1. |   1.287968   2.212217     0.58   0.582    -4.125131    6.701067
       _cons |   386.2116   598.4189     0.65   0.543    -1078.067     1850.49
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.595               1                   0.4405
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :        22  Chi-sq(21)  P-value =  .3995

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.386344   1.009174     1.37   0.219    -1.083016    3.855703
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,     6) =   12.27
            Prob > F =    0.0076

test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance
l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0
 ( 5)  L4D.Fiscal_Reliance = 0
 ( 6)  L5D.Fiscal_Reliance = 0

       F(  6,    13) =    3.11
            Prob > F =    0.0410


test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0

       F(  4,     6) =    8.45
            Prob > F =    0.0122


test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,     6) =    0.57
            Prob > F =    0.6576


fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -84.278   Log-Lik Full Model:           -51.526
D(6):                          103.053   LR(15):                        65.503
                                         Prob > LR:                      0.000
R2:                              0.949   Adjusted R2:                    0.822
AIC:                             6.139   AIC*n:                        135.053
BIC:                            84.506   BIC':                         -19.138
BIC used by Stata:             152.509   AIC used by Stata:            135.053

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE ANGOLA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

ANGOLAN UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        30

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.679            -4.334            -3.580            -3.228
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2449

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.3092476    .115438    -2.68   0.013    -.5465338   -.0719614
         LD. |   .4413578   .1755121     2.51   0.018     .0805876    .8021281
      _trend |   .3580673   .1640751     2.18   0.038     .0208062    .6953284
       _cons |   2.958651   1.937194     1.53   0.139    -1.023309    6.940611
------------------------------------------------------------------------------

.
.
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        30

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.456            -3.716            -2.986            -2.624
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5551

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1017182    .069855    -1.46   0.157    -.2450489    .0416124
         LD. |   .3435084   .1811264     1.90   0.069    -.0281322     .715149
       _cons |   3.310421   2.060602     1.61   0.120    -.9175853    7.538428
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.657            -4.343            -3.584            -3.230
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0253

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8542839   .2335817    -3.66   0.001    -1.335354   -.3732134
         LD. |   .2020015   .1959325     1.03   0.312    -.2015292    .6055321
      _trend |  -.0056193   .1104133    -0.05   0.960    -.2330198    .2217813
       _cons |     .82636   1.999357     0.41   0.683    -3.291393    4.944113
------------------------------------------------------------------------------

.
.
.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.732            -3.723            -2.989            -2.625
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0037

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8545627   .2289946    -3.73   0.001    -1.325268   -.3838577
         LD. |   .2022814   .1920619     1.05   0.302    -.1925075    .5970703
       _cons |    .736692   .9267721     0.79   0.434    -1.168315    2.641699
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        25

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.281            -4.380            -3.600            -3.240
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.4442

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.4987643   .2186154    -2.28   0.033       -.9534   -.0441287
         LD. |  -.0462172   .2151269    -0.21   0.832     -.493598    .4011636
      _trend |    .862165    .450615     1.91   0.069    -.0749402     1.79927
       _cons |   19.91697   9.908607     2.01   0.057    -.6891027    40.52305
------------------------------------------------------------------------------

.
.
```

Fiscal_Reliance_Resource_Revs_FD

```
. dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        23

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.154            -4.380            -3.600            -3.240
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0053

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.458012   .3510218    -4.15   0.001    -2.192709   -.7233154
         LD. |   .1256169   .2186056     0.57   0.572    -.3319298    .5831637
      _trend |  -.1169332   .3526142    -0.33   0.744    -.8549633    .6210969
       _cons |   3.754491   6.433634     0.58   0.566     -9.71126    17.22024
------------------------------------------------------------------------------


dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        23

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.259            -3.750            -3.000            -2.630
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0005

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.460973   .3430114    -4.26   0.000    -2.176482   -.7454638
        LD2. |   .1271176   .2136403     0.60   0.559    -.3185283    .5727634
       _cons |   1.768901   2.300848     0.77   0.451    -3.030583    6.568385
------------------------------------------------------------------------------
```

ANGOLAN CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from MacKinnon 1991.

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        29
maximum lag: 1                                      F(  1,    27)  =     97.23
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .6138751   .0622556     9.86   0.000     .4861371    .7416131
       _cons |   -11.8351   4.204187    -2.82   0.009    -20.46138   -3.208821
------------------------------------------------------------------------------
predict residual, res
(3 missing values generated)

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        25

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.577            -4.380            -3.600            -3.240
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0319

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.8349423   .2334502    -3.58   0.002    -1.320429   -.3494561
         LD. |   .2357789   .2034612     1.16   0.260    -.1873418    .6588996
      _trend |   .1671903   .1882328     0.89   0.384    -.2242612    .5586417
       _cons |  -2.410008   3.458258    -0.70   0.494    -9.601849    4.781833
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        25

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.504            -3.750            -3.000            -2.630
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0079

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.7618948   .2174336    -3.50   0.002    -1.212824   -.3109651
         LD. |   .1934891   .1968606     0.98   0.336    -.2147747    .6017529
       _cons |   .4321613   1.305292     0.33   0.744    -2.274849    3.139172
------------------------------------------------------------------------------
The critical value for co-integration with NO trend is -3.3377 at the 5 percent level.
This is above that level.  However, it is not significant at the 1 percent level, which
is - 3.9001.
```

We can reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are co-integrated series.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F(  3,    23) =    0.87
       Model |  71.1693069     3  23.7231023           Prob > F      =  0.4733
    Residual |  630.682545    23  27.4209802           R-squared     =  0.1014
-------------+------------------------------           Adj R-squared = -0.0158
       Total |  701.851852    26   26.994302           Root MSE      =  5.2365

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1980859   .1799395    -1.10   0.282    -.5703191    .1741474
Fiscal_Rel~e |
         L1. |   .0877295   .1410594     0.62   0.540     -.204074     .379533
         D1. |   .1455156   .1286226     1.13   0.270    -.1205604    .4115917
       _cons |   .6726571   5.413076     0.12   0.902    -10.52514    11.87046
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4428864   .3960306    -1.12   0.275    -1.262138    .3763653
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    23) =    0.93
            Prob > F =    0.4083

whitetst

White's general test statistic :  9.475126  Chi-sq( 9)  P-value =  .3946

.
bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.219               1                   0.0400
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        27
maximum lag: 1                                      F(  3,    23)  =      1.60
                                                    Prob > F       =    0.2165

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1980859   .1294304    -1.53   0.140    -.4658331    .0696613
Fiscal_Rel~e |
         L1. |   .0877295   .0797412     1.10   0.283    -.0772277    .2526868
         D1. |   .1455156   .0815949     1.78   0.088    -.0232762    .3143075
       _cons |   .6726571   2.839018     0.24   0.815    -5.200299    6.545613

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4428864   .1898321    -2.33   0.029    -.8355841   -.0501887
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    23) =    1.37
            Prob > F =    0.2729
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  3,    22) =    0.48
       Model |  43.4752559     3   14.491752           Prob > F      =  0.6962
    Residual |  657.486283    22  29.8857401           R-squared     =  0.0620
-------------+------------------------------           Adj R-squared = -0.0659
       Total |  700.961538    25  28.0384615           Root MSE      =  5.4668

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1043658   .1597228    -0.65   0.520    -.4356107    .2268791
Fiscal_Rel~e |
         L1. |   .0093167   .1229569     0.08   0.940    -.2456802    .2643136
         LD. |  -.0389251   .1106295    -0.35   0.728    -.2683566    .1905063
       _cons |   3.402021   5.039752     0.68   0.507    -7.049786    13.85383
------------------------------------------------------------------------------

whitetst

White's general test statistic :  13.96669  Chi-sq( 9)  P-value =  .1235

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          5.327               1                   0.0210
---------------------------------------------------------------------------
                        H0: no serial correlation

newey D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        26
maximum lag: 1                                      F(  3,    22)  =      1.26
                                                    Prob > F       =    0.3123

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1043658   .1518507    -0.69   0.499    -.4192848    .2105532
Fiscal_Rel~e |
         L1. |   .0093167   .1071455     0.09   0.931    -.2128894    .2315228
         LD. |  -.0389251   .0627937    -0.62   0.542    -.1691513    .0913011
       _cons |   3.402021   4.547903     0.75   0.462    -6.029752    12.83379

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0892697   .9148426    -0.10   0.923    -1.986537    1.807998
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    22) =    0.81
```

```
           Prob > F =    0.4565
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      24
-------------+------------------------------           F(  3,    20) =    1.44
       Model |  124.330587     3  41.4435289           Prob > F      =  0.2602
    Residual |  574.627747    20  28.7313873           R-squared     =  0.1779
-------------+------------------------------           Adj R-squared =  0.0546
       Total |  698.958333    23  30.3894928           Root MSE      =  5.3602

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.100459   .1605157    -0.63   0.538     -.435289    .2343709
Fiscal_Rel~e |
         L1. |  -.0304108   .1197116    -0.25   0.802    -.2801248    .2193033
        L2D. |   .1612753   .1011613     1.59   0.127    -.0497435     .372294
       _cons |    6.02894   5.011902     1.20   0.243    -4.425704    16.48358
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.723               1                   0.0298
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  14.46033  Chi-sq( 9)  P-value =  .1069

newey D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        24
maximum lag: 1                                      F(  3,    20)  =      0.73
                                                    Prob > F       =    0.5481

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.100459   .1628301    -0.62   0.544    -.4401166    .2391985
Fiscal_Rel~e |
         L1. |  -.0304108   .1222658    -0.25   0.806    -.2854528    .2246312
        L2D. |   .1612753   .1310319     1.23   0.233    -.1120525     .434603
       _cons |    6.02894   5.812309     1.04   0.312    -6.095324     18.1532
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3027181   1.642433     0.18   0.856    -3.123337    3.728773
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    20) =    1.04
```

```
            Prob > F =    0.3713
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F(  3,    19) =    0.76
       Model |  75.1180966     3  25.0393655           Prob > F      =  0.5282
    Residual |   622.70799    19  32.7741048           R-squared     =  0.1076
-------------+------------------------------           Adj R-squared = -0.0333
       Total |  697.826087    22  31.7193676           Root MSE      =  5.7249

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0561952    .168715    -0.33   0.743    -.4093198    .2969294
Fiscal_Rel~e |
         L1. |  -.0621606   .1323576    -0.47   0.644    -.3391882     .214867
        L3D. |  -.0625271   .1106609    -0.57   0.579     -.294143    .1690888
       _cons |   7.181552   6.054061     1.19   0.250    -5.489744    19.85285
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.768               1                   0.0522
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  13.33862  Chi-sq( 9)  P-value =  .1479

newey D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        23
maximum lag: 1                                      F(  3,     19)  =      0.66
                                                    Prob > F       =    0.5888

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0561952   .1325399    -0.42   0.676    -.3336044    .2212139
Fiscal_Rel~e |
         L1. |  -.0621606   .1283924    -0.48   0.634    -.3308889    .2065678
        L3D. |  -.0625271   .0902058    -0.69   0.497    -.2513299    .1262758
       _cons |   7.181552   7.201162     1.00   0.331    -7.890654    22.25376
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.106154   4.626621     0.24   0.814    -8.577475    10.78978
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    19) =    0.97
```

```
            Prob > F =    0.3981
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F(  3,    19) =    0.70
       Model |  69.8396884     3  23.2798961           Prob > F      =  0.5611
    Residual |  627.986399    19  33.0519157           R-squared     =  0.1001
-------------+------------------------------           Adj R-squared = -0.0420
       Total |  697.826087    22  31.7193676           Root MSE      =  5.7491

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0756746   .1628892    -0.46   0.648    -.4166056    .2652563
Fiscal_Rel~e |
         L1. |   -.063339   .1317274    -0.48   0.636    -.3390475    .2123696
        L4D. |   .0385364   .1096873     0.35   0.729    -.1910418    .2681146
       _cons |   7.813547    6.17888     1.26   0.221    -5.118997    20.74609
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.049               1                   0.0808
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  17.59577  Chi-sq( 9)  P-value =  .0402

newey D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        23
maximum lag: 1                                      F(  3,    19)  =      0.65
                                                    Prob > F       =    0.5917

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0756746   .1517582    -0.50   0.624    -.3933082     .241959
Fiscal_Rel~e |
         L1. |   -.063339    .122954    -0.52   0.612    -.3206846    .1940067
        L4D. |   .0385364   .1105333     0.35   0.731    -.1928123    .2698852
       _cons |   7.813547   7.041728     1.11   0.281    -6.924958    22.55205
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8369906   3.078426     0.27   0.789    -5.606229     7.28021
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    19) =    0.98
```

```
            Prob > F =    0.3947
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      22
-------------+------------------------------           F(  3,    18) =    0.82
       Model |   84.185157     3  28.061719           Prob > F      =  0.4972
    Residual |  612.405752    18  34.0225418           R-squared     =  0.1209
-------------+------------------------------           Adj R-squared = -0.0257
       Total |  696.590909    21  33.1709957           Root MSE      =  5.8329

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.079937   .1822822    -0.44   0.666    -.4628978    .3030238
Fiscal_Rel~e |
         L1. |  -.0535937   .1369332    -0.39   0.700    -.3412796    .2340922
        L5D. |  -.0685268   .1139327    -0.60   0.555    -.3078904    .1708369
       _cons |   7.465787   6.076921     1.23   0.235    -5.301349    20.23292
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          2.037               1                   0.1535
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  14.62932  Chi-sq( 9)  P-value =  .1016

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .6704499   3.085868     0.22   0.830    -5.812718    7.153617
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    18) =    0.91
            Prob > F =    0.4187
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -82.293   Log-Lik Full Model:            -80.849
D(23):                         161.699   LR(3):                           2.887
                                         Prob > LR:                       0.409
R2:                              0.101   Adjusted R2:                    -0.016
AIC:                             6.285   AIC*n:                         169.699
BIC:                            85.895   BIC':                            7.001
BIC used by Stata:             174.882   AIC used by Stata:             169.699

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -77.126   Log-Lik Full Model:            -75.571
D(20):                         151.142   LR(4):                           3.110
                                         Prob > LR:                       0.540
R2:                              0.117   Adjusted R2:                    -0.060
AIC:                             6.446   AIC*n:                         161.142
BIC:                            86.764   BIC':                            9.765
BIC used by Stata:             167.236   AIC used by Stata:             161.142

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -71.879   Log-Lik Full Model:            -68.867
D(17):                         137.734   LR(5):                           6.024
                                         Prob > LR:                       0.304
R2:                              0.230   Adjusted R2:                     0.004
AIC:                             6.510   AIC*n:                         149.734
BIC:                            84.430   BIC':                            9.653
BIC used by Stata:             156.547   AIC used by Stata:             149.734

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -69.223   Log-Lik Full Model:            -66.068
D(15):                         132.136   LR(6):                           6.310
                                         Prob > LR:                       0.389
R2:                              0.249   Adjusted R2:                    -0.051
AIC:                             6.643   AIC*n:                         146.136
BIC:                            85.771   BIC':                           12.236
BIC used by Stata:             153.774   AIC used by Stata:             146.136

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance L.4.d.Fiscal_Reliance
```

```
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -66.545   Log-Lik Full Model:              -63.104
D(13):                         126.209   LR(7):                             6.881
                                         Prob > LR:                         0.441
R2:                              0.279   Adjusted R2:                      -0.109
AIC:                             6.772   AIC*n:                           142.209
BIC:                            86.630   BIC':                             14.431
BIC used by Stata:             150.565   AIC used by Stata:               142.209

(Indices saved in matrix fs_mod1)
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance L.d.Fiscal_Reliance
L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F(  5,    17) =    1.02
       Model |  160.803248     5  32.1606497           Prob > F      =  0.4376
    Residual |  537.022839    17  31.5895787           R-squared     =  0.2304
-------------+------------------------------           Adj R-squared =  0.0041
       Total |  697.826087    22  31.7193676           Root MSE      =  5.6205

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1737715   .2265686    -0.77   0.454    -.6517895    .3042464
Fiscal_Rel~e |
         L1. |   .0131973   .1991064     0.07   0.948    -.4068806    .4332751
         D1. |   .1160978    .153431     0.76   0.460    -.2076134     .439809
         LD. |   .0542531   .1269534     0.43   0.674     -.213595    .3221013
        L2D. |   .1790216   .1158485     1.55   0.141    -.0653974    .4234405
       _cons |    5.20777   8.217308     0.63   0.535    -12.12924    22.54477
------------------------------------------------------------------------------

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -71.879   Log-Lik Full Model:            -68.867
D(17):                         137.734   LR(5):                           6.024
                                         Prob > LR:                       0.304
R2:                              0.230   Adjusted R2:                     0.004
AIC:                             6.510   AIC*n:                         149.734
BIC:                            84.430   BIC':                            9.653
BIC used by Stata:             156.547   AIC used by Stata:             149.734

(Indices saved in matrix fs_mod1)

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          5.540               1                   0.0186
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  22.70147  Chi-sq(20)  P-value =  .3037

. newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance L.d.Fiscal_Reliance
L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        23
maximum lag: 1                                      F(  5,    17)  =      1.17
                                                    Prob > F       =    0.3625

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1737715   .1399816    -1.24   0.231    -.4691069    .1215639
Fiscal_Rel~e |
         L1. |   .0131973    .143295     0.09   0.928    -.2891287    .3155232
         D1. |   .1160978   .0687063     1.69   0.109    -.0288598    .2610553
         LD. |   .0542531   .1244117     0.44   0.668    -.2082325    .3167388
        L2D. |   .1790216   .1717697     1.04   0.312    -.1833809     .541424
       _cons |    5.20777   8.485824     0.61   0.548    -12.69575    23.11129
```

```
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.075946   .7850398    -0.10   0.924    -1.732235    1.580343
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    17) =    1.26
            Prob > F =    0.3082

test d.Fiscal_Reliance L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0

       F(  3,    17) =    1.37
            Prob > F =    0.2861

test l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch

 ( 1)  L.REGION_DEM_DIFFUSE = 0
 ( 2)  L.WORLD_DEM_DIFFUSE = 0
 ( 3)  L.Civil_War_Gledistsch = 0

       F(  3,    10) =    1.17
            Prob > F =    0.3704

test d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    10) =    0.34
            Prob > F =    0.7995
```

```
regress D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance d.log_gdp_per_cap_haber_men
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F( 12,    10) =    1.06
       Model |  391.049126    12  32.5874272           Prob > F      =  0.4686
    Residual |  306.776961    10  30.6776961           R-squared     =  0.5604
-------------+------------------------------           Adj R-squared =  0.0328
       Total |  697.826087    22  31.7193676           Root MSE      =  5.5387

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |    .077579   .5701734     0.14   0.894    -1.192846    1.348005
log_gdp_pe~2 |
         L1. |   1.560322   19.72709     0.08   0.939    -42.39438    45.51503
REGION_DEM~E |
         L1. |   -1.29604   .7803471    -1.66   0.128    -3.034761     .442682
WORLD_DEM_~E |
         L1. |   .5027614   1.145972     0.44   0.670    -2.050622    3.056145
Civil_War_~h |
         L1. |  -3.635341    5.79005    -0.63   0.544    -16.53638    9.265693
Fiscal_Rel~e |
         L1. |  -.2226632   .3294782    -0.68   0.514    -.9567865      .51146
         D1. |   .0684969   .2077545     0.33   0.748    -.3944089    .5314028
         LD. |   .2261907   .2039299     1.11   0.293    -.2281934    .6805748
        L2D. |   .3040492     .14377     2.11   0.061    -.0162904    .6243887
log_gdp_pe~2 |
         D1. |   14.89557   24.23845     0.61   0.553    -39.11106     68.9022
REGION_DEM~E |
         D1. |   .6070665    1.11089     0.55   0.597    -1.868151    3.082284
WORLD_DEM_~E |
         D1. |  -.7328929    1.85307    -0.40   0.701    -4.861789    3.396003
       _cons |   .1918938   137.0796     0.00   0.999    -305.2405    305.6243
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.451               1                   0.5021
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        23  Chi-sq(22)  P-value =  .4017

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -2.870147   20.19938    -0.14   0.890    -47.87717    42.13687
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    10) =    0.23
            Prob > F =    0.7977
```

```
test d.Fiscal_Reliance L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0

       F(  3,    10) =    1.53
            Prob > F =    0.2661


test l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch

 ( 1)  L.REGION_DEM_DIFFUSE = 0
 ( 2)  L.WORLD_DEM_DIFFUSE = 0
 ( 3)  L.Civil_War_Gledistsch = 0

       F(  3,    10) =    1.17
            Prob > F =    0.3704

test d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    10) =    0.34
            Prob > F =    0.7995

. . fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -71.879   Log-Lik Full Model:            -62.428
D(10):                         124.856   LR(12):                         18.903
                                         Prob > LR:                       0.091
R2:                              0.560   Adjusted R2:                     0.033
AIC:                             6.559   AIC*n:                         150.856
BIC:                            93.501   BIC':                           18.723
BIC used by Stata:             165.617   AIC used by Stata:             150.856

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE BAHRAIN TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

BAHRAIN'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.550            -4.297            -3.564            -3.218
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3034

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.3680684   .1443413    -2.55   0.016    -.6628527   -.0732841
         LD. |   .2283374   .1833192     1.25   0.223    -.1460504    .6027252
      _trend |   .1249656   .0753649     1.66   0.108    -.0289501    .2788812
       _cons |  -.4558482   1.379751    -0.33   0.743    -3.273675    2.361979
------------------------------------------------------------------------------
```

```
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.942            -3.689            -2.975            -2.619
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3124

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2520452   .1297606    -1.94   0.061    -.5166937    .0126032
         LD. |   .1877607   .1867345     1.01   0.322    -.1930869    .5686083
       _cons |   1.396174    .832596     1.68   0.104    -.3019166    3.094265
------------------------------------------------------------------------------


.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        33

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -10.435            -4.306            -3.568            -3.221
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.435806   .1376002   -10.43   0.000     -1.71723   -1.154382
         LD. |   .4699692   .0986316     4.76   0.000     .2682449    .6716935
      _trend |   .1377564   .0411973     3.34   0.002     .0534984    .2220144
       _cons |  -2.281522    .831936    -2.74   0.010    -3.983022   -.5800217
```

Adding more lags of the differenced dependent variable makes no difference to the results.

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.043            -4.343            -3.584            -3.230
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0076

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.7682643   .1900024    -4.04   0.000    -1.159582   -.3769471
         LD. |   .1148919   .1724219     0.67   0.511    -.2402177    .4700015
      _trend |  -.3765251    .215486    -1.75   0.093    -.8203269    .0672767
       _cons |   53.52088   12.87939     4.16   0.000     26.99529    80.04648
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        28

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.125            -3.730            -2.992            -2.626
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.235752   .2017551    -6.13   0.000    -1.651274   -.8202291
         LD. |   .1109143   .1253077     0.89   0.385    -.1471617    .3689903
       _cons |   -.331454   1.480882    -0.22   0.825    -3.381388     2.71848
------------------------------------------------------------------------------
```

BAHRAIN CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        31
maximum lag: 1                                      F(  1,    29)  =      0.11
                                                    Prob > F       =    0.7411

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .0297479   .0891722     0.33   0.741    -.1526297    .2121255
       _cons |   1.271251   5.387901     0.24   0.815    -9.748244    12.29075
------------------------------------------------------------------------------

dfuller residual, regress trend lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =        28

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.466            -4.352            -3.588            -3.233
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0432

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.4740303    .136768    -3.47   0.002    -.7569564   -.1911042
         LD. |   .0061823   .1217217     0.05   0.960    -.2456182    .2579829
        L2D. |  -.2574527   .1070731    -2.40   0.025    -.4789502   -.0359552
      _trend |   .2706305   .0516266     5.24   0.000     .1638328    .3774282
       _cons |  -4.775432   .9775994    -4.88   0.000     -6.79775   -2.753113
------------------------------------------------------------------------------
```

-3.496 for 10 percent level. Not quite significant.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      30
-------------+------------------------------           F(  3,    26) =    3.40
       Model |  145.934787     3  48.6449291           Prob > F      =  0.0325
    Residual |  371.565213    26  14.2909697           R-squared     =  0.2820
-------------+------------------------------           Adj R-squared =  0.1992
       Total |       517.5    29  17.8448276           Root MSE      =  3.7803

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2104283   .1994147    -1.06   0.301    -.6203312    .1994746
Fiscal_Rel~e |
         L1. |  -.1830796   .0787441    -2.32   0.028    -.3449405   -.0212188
         D1. |  -.1020403   .0850463    -1.20   0.241    -.2768555    .0727748
       _cons |    12.1203   4.642295     2.61   0.015     2.577929    21.66268
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.288               1                   0.0698
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  22.67891  Chi-sq( 9)  P-value =   .007

. newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        30
maximum lag: 1                                      F(  3,    26)  =      1.71
                                                    Prob > F       =    0.1899

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2104283    .331895    -0.63   0.532    -.8926483    .4717917
Fiscal_Rel~e |
         L1. |  -.1830796   .1116372    -1.64   0.113    -.4125532    .0463939
         D1. |  -.1020403    .108622    -0.94   0.356    -.3253161    .1212354
       _cons |    12.1203    7.08814     1.71   0.099    -2.449578    26.69018
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8700334   1.449345     0.60   0.554    -2.109139    3.849205
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    26) =    1.50
            Prob > F =    0.2412
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      30
-------------+------------------------------           F(  3,    26) =    6.08
       Model |  123.657996     3  41.2193319           Prob > F      =  0.0028
    Residual |  176.342004    26  6.78238478           R-squared     =  0.4122
-------------+------------------------------           Adj R-squared =  0.3444
       Total |         300    29  10.3448276           Root MSE      =  2.6043

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0989435   .1067115    -0.93   0.362     -.318292    .1204051
Fiscal_Rel~e |
         L1. |   .0097777   .0509293     0.19   0.849    -.0949091    .1144645
         LD. |  -.1601231   .0502462    -3.19   0.004    -.2634057   -.0568405
       _cons |  -.1769357   3.174715    -0.06   0.956    -6.702655    6.348784
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.706               1                   0.0301
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  17.98989  Chi-sq( 9)  P-value =  .0353

. newey D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        30
maximum lag: 1                                      F(  3,    26)  =      1.47
                                                    Prob > F       =    0.2451

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0989435   .1182507    -0.84   0.410    -.3420112    .1441242
Fiscal_Rel~e |
         L1. |   .0097777   .0484074     0.20   0.841    -.0897251    .1092805
         LD. |  -.1601231   .0769011    -2.08   0.047    -.3181955   -.0020506
       _cons |  -.1769357   2.896765    -0.06   0.952    -6.131321    5.777449
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0988211   .5711295    -0.17   0.864    -1.272795    1.075152
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    26) =    0.79
            Prob > F =    0.4635
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  3,    25) =    3.25
       Model |  84.156943     3  28.0523143           Prob > F      =  0.0386
    Residual | 215.843057    25  8.63372228           R-squared     =  0.2805
-------------+------------------------------           Adj R-squared =  0.1942
       Total |        300    28  10.7142857           Root MSE      =  2.9383

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1799603   .1375035    -1.31   0.203     -.463154    .1032334
Fiscal_Rel~e |
         L1. |  -.1053129   .0602454    -1.75   0.093    -.2293908    .0187649
        L2D. |   .0886554   .0484958     1.83   0.079    -.0112236    .1885343
       _cons |   6.919846    3.62272     1.91   0.068    -.5412862    14.38098
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          6.658               1                   0.0099
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  27.27544  Chi-sq( 9)  P-value =  .0013

newey D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        29
maximum lag: 1                                      F(  3,    25)  =      1.15
                                                    Prob > F       =    0.3481

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1799603   .2324779    -0.77   0.446    -.6587575     .298837
Fiscal_Rel~e |
         L1. |  -.1053129   .0800354    -1.32   0.200     -.270149    .0595231
        L2D. |   .0886554   .0523402     1.69   0.103    -.0191412     .196452
       _cons |   6.919846   4.966615     1.39   0.176     -3.30909    17.14878
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5852011   .6078538     0.96   0.345    -.6666973    1.837099
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    25) =    0.87
            Prob > F =    0.4330

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      28
-------------+------------------------------           F(  3,    24) =    0.67
       Model |  5.19164546     3  1.73054849           Prob > F      =  0.5774
    Residual |  61.7726403    24  2.57386001           R-squared     =  0.0775
-------------+------------------------------           Adj R-squared = -0.0378
       Total |  66.9642857    27  2.48015873           Root MSE      =  1.6043

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   .1080433   .0844556     1.28   0.213    -.0662646    .2823511
Fiscal_Rel~e |
         L1. |   .0165937   .0332779     0.50   0.623    -.0520885    .0852758
        L3D. |  -.0102256   .0258473    -0.40   0.696    -.0635719    .0431206
       _cons |  -.7149062   2.033881    -0.35   0.728    -4.912631    3.482819
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.243               1                   0.6222
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  12.03007  Chi-sq( 9)  P-value =  .2116

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1535834   .3400999     0.45   0.656    -.5483482    .8555151
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    24) =    1.01
            Prob > F =    0.3809
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F(  3,    23) =    0.74
       Model |  5.83528735     3  1.94509578           Prob > F      =  0.5416
    Residual |  60.8313793    23  2.64484258           R-squared     =  0.0875
-------------+------------------------------           Adj R-squared = -0.0315
       Total |  66.6666667    26  2.56410256           Root MSE      =  1.6263

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   .0983907   .0862848     1.14   0.266     -.080103    .2768843
Fiscal_Rel~e |
         L1. |   .0202513   .0366276     0.55   0.586    -.0555186    .0960211
        L4D. |  -.0152257   .0258512    -0.59   0.562    -.0687029    .0382515
       _cons |  -.8911755   2.193388    -0.41   0.688    -5.428545    3.646194
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.218               1                   0.6407
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  10.54369  Chi-sq( 9)  P-value =  .3083

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2058249   .4429866     0.46   0.647    -.7105627    1.122213
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    23) =    0.95
            Prob > F =    0.4000

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  3,    22) =    0.63
       Model |   5.2172706     3  1.7390902           Prob > F      =  0.6059
    Residual |  61.1288832    22  2.7785856           R-squared     =  0.0786
-------------+------------------------------           Adj R-squared = -0.0470
       Total |  66.3461538    25  2.65384615           Root MSE      =  1.6669

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   .0866067   .0909095     0.95   0.351     -.101928    .2751415
Fiscal_Rel~e |
         L1. |   .0280094    .041747     0.67   0.509    -.0585687    .1145875
        L5D. |  -.0028225   .0270707    -0.10   0.918    -.0589636    .0533187
       _cons |  -1.303044    2.45517    -0.53   0.601    -6.394755    3.788668
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.371               1                   0.5423
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  12.17804  Chi-sq( 9)  P-value =  .2035

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3234092    .655063     0.49   0.626    -1.035108    1.681927
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    22) =    0.89
            Prob > F =    0.4236

.
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -85.285   Log-Lik Full Model:          -80.316
D(26):                        160.632   LR(3):                         9.939
                                        Prob > LR:                     0.019
R2:                             0.282   Adjusted R2:                   0.199
AIC:                            5.621   AIC*n:                       168.632
BIC:                           72.201   BIC':                          0.265
BIC used by Stata:            174.237   AIC used by Stata:           168.632

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -75.028   Log-Lik Full Model:          -67.141
D(24):                        134.283   LR(4):                        15.774
                                        Prob > LR:                     0.003
R2:                             0.420   Adjusted R2:                   0.323
AIC:                            4.975   AIC*n:                       144.283
BIC:                           53.468   BIC':                         -2.305
BIC used by Stata:            151.119   AIC used by Stata:           144.283

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -72.932   Log-Lik Full Model:          -64.930
D(22):                        129.861   LR(5):                        16.004
                                        Prob > LR:                     0.007
R2:                             0.435   Adjusted R2:                   0.307
AIC:                            5.066   AIC*n:                       141.861
BIC:                           56.552   BIC':                          0.657
BIC used by Stata:            149.854   AIC used by Stata:           141.861

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

.
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -50.514   Log-Lik Full Model:          -47.793
D(20):                         95.587   LR(6):                         5.440
                                        Prob > LR:                     0.489
R2:                             0.182   Adjusted R2:                  -0.063
AIC:                            4.059   AIC*n:                       109.587
BIC:                           29.670   BIC':                         14.335
BIC used by Stata:            118.658   AIC used by Stata:           109.587

(Indices saved in matrix fs_mod1)
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance l.4.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -49.071   Log-Lik Full Model:            -46.015
D(18):                          92.031   LR(7):                           6.111
                                         Prob > LR:                       0.527
R2:                              0.209   Adjusted R2:                    -0.098
AIC:                             4.155   AIC*n:                         108.031
BIC:                            33.385   BIC':                           16.696
BIC used by Stata:             118.095   AIC used by Stata:             108.031

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance l.4.d.Fiscal_Reliance l.5.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -47.608   Log-Lik Full Model:            -44.617
D(16):                          89.234   LR(8):                           5.982
                                         Prob > LR:                       0.649
R2:                              0.213   Adjusted R2:                    -0.181
AIC:                             4.289   AIC*n:                         107.234
BIC:                            37.732   BIC':                           19.769
BIC used by Stata:             118.204   AIC used by Stata:             107.234

(Indices saved in matrix fs_mod1)

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F(  6,    20) =    0.74
       Model |   12.166011     6   2.0276685           Prob > F      =  0.6209
    Residual |  54.5006557    20  2.72503278           R-squared     =  0.1825
-------------+------------------------------           Adj R-squared = -0.0628
       Total |  66.6666667    26  2.56410256           Root MSE      =  1.6508

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   .2211791   .1237014     1.79   0.089    -.0368575    .4792156
Fiscal_Rel~e |
         L1. |   .0042491   .0493734     0.09   0.932     -.098742    .1072402
         D1. |   -.012307   .0500977    -0.25   0.808    -.1168091     .092195
         LD. |   .0135556   .0510721     0.27   0.793    -.0929789    .1200902
        L2D. |   .0109021   .0362327     0.30   0.767    -.0646779    .0864822
        L3D. |  -.0014222   .0321112    -0.04   0.965     -.068405    .0655606
       _cons |  -.1247559   3.002517    -0.04   0.967    -6.387896    6.138384
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.585               1                   0.4442
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :        27  Chi-sq(26)  P-value =  .4093

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0192111   .2226997     0.09   0.932    -.4453323    .4837546
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    20) =    1.60
            Prob > F =    0.2268

. test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0

       F(  4,    20) =    0.06
            Prob > F =    0.9932

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch
d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F( 12,    14) =    1.88
       Model |  41.1793583    12  3.43161319           Prob > F      =  0.1288
    Residual |  25.4873084    14  1.82052203           R-squared     =  0.6177
-------------+------------------------------           Adj R-squared =  0.2900
       Total |  66.6666667    26  2.56410256           Root MSE      =  1.3493

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.4999226   .3043653    -1.64   0.123    -1.152721    .1528759
Fiscal_Rel~e |
         L1. |  -.1220722   .1267351    -0.96   0.352    -.3938919    .1497475
         D1. |  -.0399102   .0485357    -0.82   0.425     -.144009    .0641886
         LD. |   .0881884   .0912139     0.97   0.350    -.1074459    .2838227
        L2D. |   .1042041   .0647862     1.61   0.130    -.0347485    .2431566
        L3D. |   .0367293   .0383813     0.96   0.355    -.0455904    .1190491
log_gdp_pe~2 |
         L1. |   41.22382    15.3015     2.69   0.017     8.405364    74.04228
REGION_DEM~E |
         L1. |   .0205255   .2053549     0.10   0.922     -.419917     .460968
WORLD_DEM_~E |
         L1. |  -.0584839   .2184168    -0.27   0.793    -.5269414    .4099736
Civil_War_~h |
         L1. |  (dropped)
log_gdp_pe~2 |
         D1. |   19.19368   15.02146     1.28   0.222    -13.02416    51.41152
REGION_DEM~E |
         D1. |  -.2796774   .2484964    -1.13   0.279    -.8126491    .2532943
WORLD_DEM_~E |
         D1. |   .2951568   .2918009     1.01   0.329    -.3306939    .9210076
       _cons |  -389.9717   138.0832    -2.82   0.014    -686.1307   -93.81259
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.494               1                   0.4821
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :        27  Chi-sq(26)  P-value =  .4093

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2441822   .3256045     0.75   0.466    -.4541701    .9425345
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    14) =    2.39
            Prob > F =    0.1282
```

```
. test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0

       F(  4,    14) =    0.83
            Prob > F =    0.5290

test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0
       Constraint 4 dropped

       F(  3,    14) =    3.70
            Prob > F =    0.0378

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    14) =    1.93
            Prob > F =    0.1708

.
```

```
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -50.514   Log-Lik Full Model:              -37.533
D(13):                          75.066   LR(12):                           25.961
                                         Prob > LR:                         0.011
R2:                              0.618   Adjusted R2:                       0.290
AIC:                             3.817   AIC*n:                           103.066
BIC:                            32.220   BIC':                             13.589
BIC used by Stata:             117.912   AIC used by Stata:               101.066

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE CHILE TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

CHILE UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       187

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.707            -4.011            -3.438            -3.138
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2333

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0701158   .0259036    -2.71   0.007    -.1212239   -.0190077
         LD. |   .1760411   .0731191     2.41   0.017     .0317762     .320306
      _trend |   .0163084   .0105154     1.55   0.123    -.0044387    .0370555
       _cons |   2.584124   1.357962     1.90   0.059    -.0951508    5.263399
------------------------------------------------------------------------------
```

```
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       187

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.227            -3.481            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1967

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0506284   .0227383    -2.23   0.027    -.0954897   -.0057671
         LD. |   .1674337   .0731861     2.29   0.023      .023042    .3118255
       _cons |   3.080989   1.324659     2.33   0.021     .4675157    5.694463
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       186

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.051            -4.011            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8807679   .0973157    -9.05   0.000     -1.07278   -.6887558
         LD. |   .0234573   .0741902     0.32   0.752    -.1229261    .1698408
      _trend |   .0025254   .0094778     0.27   0.790     -.016175    .0212258
       _cons |   .1197027   1.030029     0.12   0.908     -1.91263    2.152036
------------------------------------------------------------------------------
```

```
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       186

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.070            -3.481            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8802093   .0970459    -9.07   0.000    -1.071682   -.6887366
         LD. |   .0231665   .0739936     0.31   0.755    -.1228238    .1691568
       _cons |   .3581433   .5087885     0.70   0.482    -.6457025    1.361989
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       138

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.762            -4.027            -3.445            -3.145
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2113

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.1396288   .0505566    -2.76   0.007    -.2396209   -.0396368
         LD. |  -.0915378   .0912641    -1.00   0.318    -.2720423    .0889668
      _trend |  -.0172002   .0191518    -0.90   0.371    -.0550791    .0206788
       _cons |   4.127952   1.989064     2.08   0.040     .1939309    8.061974
------------------------------------------------------------------------------

. dfuller Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       138

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.649            -3.497            -2.887            -2.577
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0832

------------------------------------------------------------------------------
D.           |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.1318815   .0497795    -2.65   0.009    -.2303299    -.033433
         LD. |  -.0929149   .0911859    -1.02   0.310    -.2732525    .0874226
       _cons |   2.714137   1.214924     2.23   0.027     .3113911    5.116882
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       136

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.173            -4.028            -3.445            -3.145
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.251476   .1364342    -9.17   0.000    -1.521356   -.9815954
         LD. |   .0938454   .0952665     0.99   0.326    -.0946012     .282292
      _trend |  -.0090898   .0197089    -0.46   0.645    -.0480758    .0298963
       _cons |    .959969   1.670613     0.57   0.567    -2.344668    4.264606
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       136

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.188            -3.498            -2.888            -2.578
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.248108   .1358349    -9.19   0.000    -1.516784   -.9794322
        LD2. |    .091722   .0948731     0.97   0.335    -.0959334    .2793774
       _cons |    .291741   .8292068     0.35   0.726    -1.348398     1.93188
------------------------------------------------------------------------------
```

CHILE CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon (1991).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       142
maximum lag: 1                                      F(  1,    140)  =      1.40
                                                    Prob > F       =    0.2392

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .1239357   .1048453     1.18   0.239    -.0833491    .3312205
       _cons |   58.47954   4.029163    14.51   0.000     50.51367    66.44541
------------------------------------------------------------------------------

. predict residual, res
(47 missing values generated)

.
dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       138

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.530            -4.027            -3.445            -3.145
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3133

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0821223   .0324638    -2.53   0.013    -.1463301   -.0179146
         LD. |   .1749646    .085538     2.05   0.043     .0057853     .344144
      _trend |   .0095351   .0150975     0.63   0.529    -.0203252    .0393954
       _cons |   -.326587   1.285147    -0.25   0.800    -2.868383    2.215209
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       138

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.485            -3.497            -2.887            -2.577
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1192

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0801034    .032234    -2.49   0.014    -.1438524   -.0163544
         LD. |   .1758671   .0853355     2.06   0.041     .0070998    .3446345
       _cons |   .3778947   .6368308     0.59   0.554    -.8815606     1.63735
------------------------------------------------------------------------------
```

Test statistic: -2.49

Critical Values:
-3.9001

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     140
-------------+------------------------------           F(  3,   136) =    1.71
       Model |  290.055912     3  96.6853041           Prob > F      =  0.1672
    Residual |  7674.94409   136  56.4334124           R-squared     =  0.0364
-------------+------------------------------           Adj R-squared =  0.0152
       Total |        7965   139  57.3021583           Root MSE      =  7.5122

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0660345   .0315863    -2.09   0.038    -.1284984   -.0035707
Fiscal_Rel~e |
         L1. |   .0268932     .03956     0.68   0.498    -.0513391    .1051256
         D1. |   .0600007   .0682474     0.88   0.381    -.0749626    .1949639
       _cons |   3.989054   2.072856     1.92   0.056    -.1101456    8.088253
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.420               1                   0.0355
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   5.55238  Chi-sq( 9)  P-value =  .7837

. newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       140
maximum lag: 1                                      F(  3,   136)  =      1.35
                                                    Prob > F       =    0.2607

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0660345   .0364298    -1.81   0.072    -.1380766    .0060076
Fiscal_Rel~e |
         L1. |   .0268932   .0368121     0.73   0.466    -.0459049    .0996914
         D1. |   .0600007   .0420372     1.43   0.156    -.0231304    .1431317
       _cons |   3.989054   2.031778     1.96   0.052    -.0289113    8.007019
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4072605   .4340083    -0.94   0.350    -1.265538    .4510173
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   136) =    1.90
            Prob > F =    0.1533
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     140
-------------+------------------------------           F(  3,   136) =    1.44
       Model |  246.107464     3  82.0358212           Prob > F      =  0.2334
    Residual |  7738.71396   136  56.9023086           R-squared     =  0.0308
-------------+------------------------------           Adj R-squared =  0.0094
       Total |  7984.82143   139  57.4447585           Root MSE      =  7.5434

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0621736   .0315915    -1.97   0.051    -.1246477    .0003005
Fiscal_Rel~e |
         L1. |   .0100255   .0397872     0.25   0.801    -.0686561    .0887071
         LD. |   .0405205   .0694191     0.58   0.560      -.09676    .1778011
       _cons |   4.135499   2.079368     1.99   0.049     .0234227    8.247574
------------------------------------------------------------------------------
bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.682               1                   0.0550
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  6.238543  Chi-sq( 9)  P-value =  .7158

newey D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       140
maximum lag: 1                                      F(  3,   136)  =      1.14
                                                    Prob > F       =    0.3354

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0621736   .0362588    -1.71   0.089    -.1338776    .0095304
Fiscal_Rel~e |
         L1. |   .0100255   .0356976     0.28   0.779    -.0605686    .0806197
         LD. |   .0405205   .0607474     0.67   0.506    -.0796111    .1606522
       _cons |   4.135499   2.227403     1.86   0.066    -.2693268    8.540324
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1612504   .5332087    -0.30   0.763    -1.215703    .8932022
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   136) =    1.69
            Prob > F =    0.1875
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     138
-------------+------------------------------           F(  3,   134) =    2.67
       Model |  450.748218     3  150.249406           Prob > F      =  0.0500
    Residual |  7533.49091   134  56.2200814           R-squared     =  0.0565
-------------+------------------------------           Adj R-squared =  0.0353
       Total |  7984.23913   137  58.2791177           Root MSE      =   7.498

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0642347   .0315741    -2.03   0.044    -.1266827   -.0017866
Fiscal_Rel~e |
         L1. |   .0066999   .0383919     0.17   0.862    -.0692325    .0826323
        L2D. |   .1411159   .0715452     1.97   0.051    -.0003881    .2826198
       _cons |   4.371502   2.079099     2.10   0.037     .2594064    8.483598
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.145               1                   0.0418
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  27.09783  Chi-sq( 9)  P-value =  .0013

newey D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       138
maximum lag: 1                                      F(  3,   134)  =      1.22
                                                    Prob > F       =    0.3040

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0642347   .0369601    -1.74   0.085    -.1373354     .008866
Fiscal_Rel~e |
         L1. |   .0066999   .0300036     0.22   0.824    -.0526419    .0660417
        L2D. |   .1411159   .1141098     1.24   0.218    -.0845734    .3668052
       _cons |   4.371502   2.298328     1.90   0.059    -.1741892    8.917194
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1043037   .4432418    -0.24   0.814    -.9809586    .7723513
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   134) =    1.71
            Prob > F =    0.1851
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     136
-------------+------------------------------           F(  3,   132) =    1.40
       Model |  245.595661     3  81.8652203           Prob > F      =  0.2467
    Residual |  7738.04404   132  58.6215458           R-squared     =  0.0308
-------------+------------------------------           Adj R-squared =  0.0087
       Total |  7983.63971   135  59.1380719           Root MSE      =  7.6565

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0642656   .0324955    -1.98   0.050    -.1285449    .0000137
Fiscal_Rel~e |
         L1. |   .0216899   .0397572     0.55   0.586    -.0569538    .1003336
        L3D. |  -.0277681   .0764628    -0.36   0.717    -.1790191    .1234829
       _cons |   4.101466   2.147804     1.91   0.058    -.1471021    8.350033
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.489               1                   0.0341
---------------------------------------------------------------------------
                        H0: no serial correlation
whitetst

White's general test statistic :  6.880128  Chi-sq( 9)  P-value =  .6496

newey D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       136
maximum lag: 1                                      F(  3,   132)  =      1.22
                                                    Prob > F       =    0.3061

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0642656    .037943    -1.69   0.093    -.1393206    .0107895
Fiscal_Rel~e |
         L1. |   .0216899   .0310938     0.70   0.487    -.0398168    .0831965
        L3D. |  -.0277681   .0602402    -0.46   0.646    -.1469291    .0913929
       _cons |   4.101466   2.206766     1.86   0.065    -.2637364    8.466668
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3375038   .3808047    -0.89   0.377    -1.090773    .4157655
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   132) =    1.60
            Prob > F =    0.2049
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     134
-------------+------------------------------           F(  3,   130) =    1.37
       Model |  245.028888     3  81.676296            Prob > F      =  0.2542
    Residual |   7737.9935   130  59.5230269           R-squared     =  0.0307
-------------+------------------------------           Adj R-squared =  0.0083
       Total |  7983.02239   133  60.0227247           Root MSE      =  7.7151

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0664481   .0329549    -2.02   0.046    -.1316455   -.0012506
Fiscal_Rel~e |
         L1. |   .0198662   .0397165     0.50   0.618    -.0587082    .0984406
        L4D. |   .0115885    .075777     0.15   0.879    -.1383271    .1615042
       _cons |   4.294429   2.171096     1.98   0.050    -.0008253    8.589683
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.204               1                   0.0403
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :   5.56336  Chi-sq( 9)  P-value =  .7827

. newey D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       134
maximum lag: 1                                      F(  3,   130)  =      1.17
                                                    Prob > F       =    0.3238

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0664481   .0383379    -1.73   0.085    -.1422951    .0093989
Fiscal_Rel~e |
         L1. |   .0198662   .0344602     0.58   0.565    -.0483092    .0880415
        L4D. |   .0115885   .0294998     0.39   0.695    -.0467734    .0699504
       _cons |   4.294429    2.30313     1.86   0.064    -.2620386    8.850896
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.298973   .4328427    -0.69   0.491    -1.155301    .5573545
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   130) =    1.71
            Prob > F =    0.1853
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     132
-------------+------------------------------           F(  3,   128) =    1.61
       Model |  290.593226     3  96.8644088           Prob > F      =  0.1898
    Residual |  7691.79314   128  60.0921339           R-squared     =  0.0364
-------------+------------------------------           Adj R-squared =  0.0138
       Total |  7982.38636   131  60.9342471           Root MSE      =  7.7519

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0658249   .0332979    -1.98   0.050    -.1317106    .0000607
Fiscal_Rel~e |
         L1. |   .0264795    .040764     0.65   0.517    -.0541789     .107138
        L5D. |  -.0708406   .0854311    -0.83   0.409    -.2398807    .0981995
       _cons |   4.181074   2.206561     1.89   0.060    -.1849843    8.547133
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.147               1                   0.0417
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  8.054199  Chi-sq( 9)  P-value =  .5287

newey D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       132
maximum lag: 1                                      F(  3,   128)  =      1.32
                                                    Prob > F       =    0.2716

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0658249   .0382312    -1.72   0.088     -.141472    .0098221
Fiscal_Rel~e |
         L1. |   .0264795   .0393958     0.67   0.503    -.0514717    .1044308
        L5D. |  -.0708406   .0604776    -1.17   0.244    -.1905058    .0488246
       _cons |   4.181074   2.314354     1.81   0.073    -.3982698    8.760419
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4022722   .4912376    -0.82   0.414     -1.37427    .5697253
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   128) =    1.60
            Prob > F =    0.2059
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -481.533   Log-Lik Full Model:           -478.937
D(136):                        957.873   LR(3):                           5.193
                                         Prob > LR:                       0.158
R2:                              0.036   Adjusted R2:                     0.015
AIC:                             6.899   AIC*n:                         965.873
BIC:                           285.810   BIC':                            9.631
BIC used by Stata:             977.640   AIC used by Stata:             965.873

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -475.643   Log-Lik Full Model:           -472.781
D(133):                        945.563   LR(4):                           5.722
                                         Prob > LR:                       0.221
R2:                              0.041   Adjusted R2:                     0.012
AIC:                             6.924   AIC*n:                         955.563
BIC:                           290.238   BIC':                           13.987
BIC used by Stata:             970.199   AIC used by Stata:             955.563

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -469.738   Log-Lik Full Model:           -464.745
D(130):                        929.490   LR(5):                           9.985
                                         Prob > LR:                       0.076
R2:                              0.071   Adjusted R2:                     0.035
AIC:                             6.923   AIC*n:                         941.490
BIC:                           290.845   BIC':                           14.578
BIC used by Stata:             958.966   AIC used by Stata:             941.490

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -463.818   Log-Lik Full Model:           -458.855
D(127):                        917.709   LR(6):                           9.926
                                         Prob > LR:                       0.128
R2:                              0.071   Adjusted R2:                     0.028
AIC:                             6.953   AIC*n:                         931.709
BIC:                           295.684   BIC':                           19.461
BIC used by Stata:             951.994   AIC used by Stata:             931.709

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =     140
-------------+------------------------------           F( 10,   129) =    2.05
       Model |  1091.52966    10  109.152966           Prob > F      =  0.0334
    Residual |  6873.47034   129  53.2827158           R-squared     =  0.1370
-------------+------------------------------           Adj R-squared =  0.0701
       Total |        7965   139  57.3021583           Root MSE      =  7.2995

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1017059   .0352918    -2.88   0.005    -.1715317   -.0318802
log_gdp_pe~2 |
         L1. |  -5.063133   2.808409    -1.80   0.074    -10.61964    .4933719
REGION_DEM~E |
         L1. |   .1508714    .057046     2.64   0.009     .0380045    .2637383
WORLD_DEM_~E |
         L1. |   .0931526   .1696162     0.55   0.584    -.2424372    .4287424
Civil_War_~h |
         L1. |   -.978252   5.304941    -0.18   0.854    -11.47421    9.517703
Fiscal_Rel~e |
         L1. |   .0939439   .0458567     2.05   0.043     .0032153    .1846726
         D1. |   .0700986   .0682651     1.03   0.306    -.0649655    .2051628
log_gdp_pe~2 |
         D1. |   7.229935   9.133143     0.79   0.430    -10.84021    25.30008
REGION_DEM~E |
         D1. |    .471901   .2652099     1.78   0.078    -.0528234    .9966253
WORLD_DEM_~E |
         D1. |  -.4382881   .4361501    -1.00   0.317    -1.301222    .4246455
       _cons |   41.16548   19.86692     2.07   0.040     1.858296    80.47266
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          2.770               1                   0.0960
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  67.03966  Chi-sq(56)  P-value =  .1483
```

```
newey D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       140
maximum lag: 1                                      F( 10,   129)  =      0.54
                                                    Prob > F       =    0.8600

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1017059   .0542305    -1.88   0.063    -.2090023    .0055904
log_gdp_pe~2 |
         L1. |  -5.063133   4.234487    -1.20   0.234    -13.44117    3.314904
REGION_DEM~E |
         L1. |   .1508714    .096376     1.57   0.120    -.0398109    .3415537
WORLD_DEM_~E |
         L1. |   .0931526   .1596466     0.58   0.561     -.222712    .4090173
Civil_War_~h |
         L1. |   -.978252   1.235733    -0.79   0.430     -3.42318    1.466677
Fiscal_Rel~e |
         L1. |   .0939439   .0731734     1.28   0.201    -.0508315    .2387193
         D1. |   .0700986   .0465212     1.51   0.134    -.0219448    .1621421
log_gdp_pe~2 |
         D1. |   7.229935    7.94719     0.91   0.365    -8.493775    22.95364
REGION_DEM~E |
         D1. |    .471901   .4215666     1.12   0.265    -.3621788    1.305981
WORLD_DEM_~E |
         D1. |  -.4382881   .3930917    -1.11   0.267     -1.21603    .3394535
       _cons |   41.16548   31.25543     1.32   0.190    -20.67416    103.0051
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9236817   .4050213    -2.28   0.024    -1.725026   -.1223371
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   129) =    1.91
            Prob > F =    0.1528

test l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0

       F(  4,   129) =    1.20
            Prob > F =    0.3123

test d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,   129) =    0.50
            Prob > F =    0.6828
```

```
quietly regress D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -481.533   Log-Lik Full Model:           -471.216
D(129):                        942.432   LR(10):                         20.634
                                         Prob > LR:                       0.024
R2:                              0.137   Adjusted R2:                     0.070
AIC:                             6.889   AIC*n:                         964.432
BIC:                           304.960   BIC':                           28.782
BIC used by Stata:             996.790   AIC used by Stata:             964.432

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE ECUADOR TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

ECUADOR UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       175

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.030            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1240

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1033131   .0341006    -3.03   0.003    -.1706255   -.0360007
         LD. |   .0460075   .0764925     0.60   0.548    -.1049837    .1969986
      _trend |   .0269353   .0122814     2.19   0.030     .0026925     .051178
       _cons |   3.132423   1.512015     2.07   0.040     .1478057    6.117041
------------------------------------------------------------------------------

.
.
.
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       175

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.133            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2314

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0598429   .0280544    -2.13   0.034     -.115218   -.0044677
         LD. |   .0287314   .0769239     0.37   0.709     -.123105    .1805678
       _cons |   3.298748   1.526746     2.16   0.032     .2851779    6.312318
------------------------------------------------------------------------------

.
.
.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.491            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.032879   .1088301    -9.49   0.000    -1.247711   -.8180462
         LD. |   .0273208     .07676     0.36   0.722    -.1242048    .1788464
      _trend |   .0054781   .0103794     0.53   0.598    -.0150109    .0259671
       _cons |  -.2483144    1.05526    -0.24   0.814    -2.331415    1.834787
------------------------------------------------------------------------------

.
.
.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.496            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |   -1.03019   .1084812    -9.50   0.000    -1.244324   -.8160549
         LD. |   .0259644    .076555     0.34   0.735    -.1251501    .1770789
       _cons |   .2359577   .5201276     0.45   0.651    -.7907399    1.262655
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.821            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1895

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.0980689   .0347685    -2.82   0.005    -.1667025   -.0294353
         LD. |  -.0614174   .0765876    -0.80   0.424    -.2126025    .0897677
      _trend |    .018171   .0082271     2.21   0.029     .0019306    .0344114
       _cons |  -.9195814   .6969466    -1.32   0.189    -2.295366    .4562029
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -12.715            -4.016            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.405895   .1105666   -12.72   0.000    -1.624165   -1.187626
         LD. |   .2663817   .0742651     3.59   0.000     .1197749    .4129884
      _trend |   .0039452   .0062397     0.63   0.528    -.0083725    .0162629
       _cons |  -.1440174   .6305681    -0.23   0.820    -1.388822    1.100787
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -12.722            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.402142    .110212   -12.72   0.000    -1.619703   -1.184582
        LD2. |   .2646065   .0740809     3.57   0.000     .1183696    .4108434
       _cons |    .202602    .311043     0.65   0.516    -.4114021    .8166061
------------------------------------------------------------------------------
```

```
dfuller D.Fiscal_Reliance, regress lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       172

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.746            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |   -1.50575   .1545067    -9.75   0.000    -1.810775   -1.200725
        LD2. |   .3487639   .1149329     3.03   0.003     .1218652    .5756627
       L2D2. |   .0739901   .0770907     0.96   0.339    -.0782013    .2261814
       _cons |   .2179941   .3132908     0.70   0.488       -.4005    .8364881
------------------------------------------------------------------------------

.
```

Model that is best is 1 lag and no trend.

ECUADOR'S CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       176
maximum lag: 1                                      F(  1,    174)  =     82.36
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   1.158081   .1276089     9.08   0.000     .9062203    1.409942
       _cons |   44.93828   .8986827    50.00   0.000     43.16455      46.712
------------------------------------------------------------------------------


.
.

predict residual, res
(1 missing value generated)

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.687            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0007

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.2492314   .0531732    -4.69   0.000    -.3541961   -.1442667
         LD. |   .0362349    .076663     0.47   0.637    -.1150992     .187569
      _trend |   .0085685   .0120254     0.71   0.477    -.0151698    .0323068
       _cons |  -.7322775    1.22153    -0.60   0.550    -3.143599    1.679044
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.641            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0001

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.2443733   .0526583    -4.64   0.000    -.3483172   -.1404293
         LD. |   .0340479   .0764912     0.45   0.657    -.1169407    .1850365
       _cons |   .0262598   .5981707     0.04   0.965     -1.15449    1.207009
------------------------------------------------------------------------------
```

Critical Values:

-4.64

-3.9001 for the 1 percent level.

We reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are co-integrated.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     175
-------------+------------------------------           F(  3,   171) =    4.63
       Model |  601.805191     3  200.60173            Prob > F      =  0.0039
    Residual |  7416.19481   171  43.3695603           R-squared     =  0.0751
-------------+------------------------------           Adj R-squared =  0.0588
       Total |        8018   174  46.0804598           Root MSE      =  6.5856

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1573261   .0422851    -3.72   0.000     -.240794   -.0738581
Fiscal_Rel~e |
         L1. |   .1934084   .0652553     2.96   0.003     .0645987    .3222182
         D1. |   .1139326   .1229521     0.93   0.355    -.1287667    .3566318
       _cons |   7.187149    1.96613     3.66   0.000     3.306139    11.06816
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.726               1                   0.3941
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  28.46378  Chi-sq( 9)  P-value =  8.0e-04

. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     175
                                                       F(  3,   171) =    1.57
                                                       Prob > F      =  0.1979
                                                       R-squared     =  0.0751
                                                       Root MSE      =  6.5856

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1573261   .1073604    -1.47   0.145    -.3692484    .0545963
Fiscal_Rel~e |
         L1. |   .1934084   .1522893     1.27   0.206    -.1072005    .4940174
         D1. |   .1139326   .2088957     0.55   0.586    -.2984138    .5262789
       _cons |   7.187149   4.993056     1.44   0.152    -2.668814    17.04311
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.229348   .1920852    -6.40   0.000    -1.608511   -.8501843
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   171) =    1.71
            Prob > F =    0.1845
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     175
-------------+------------------------------           F(  3,   171) =    5.31
       Model |  685.225565     3  228.408522           Prob > F      =  0.0016
    Residual |  7355.63158   171  43.0153893           R-squared     =  0.0852
-------------+------------------------------           Adj R-squared =  0.0692
       Total |  8040.85714   174  46.2118227           Root MSE      =  6.5586

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1607679   .0417822    -3.85   0.000    -.2432432   -.0782926
Fiscal_Rel~e |
         L1. |   .2095005   .0648989     3.23   0.001     .0813945    .3376066
         LD. |  -.2119288   .1223984    -1.73   0.085    -.4535352    .0296776
       _cons |   7.353089    1.95045     3.77   0.000     3.503029    11.20315
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.602               1                   0.4378
---------------------------------------------------------------------------
                        H0: no serial correlation
whitetst

White's general test statistic :  26.50391  Chi-sq( 9)  P-value =  .0017

regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     175
                                                       F(  3,   171) =    0.99
                                                       Prob > F      =  0.4000
                                                       R-squared     =  0.0852
                                                       Root MSE      =  6.5586

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1607679    .104145    -1.54   0.125    -.3663433    .0448075
Fiscal_Rel~e |
         L1. |   .2095005    .149173     1.40   0.162    -.0849571    .5039582
         LD. |  -.2119288   .1868815    -1.13   0.258    -.5808205    .1569629
       _cons |   7.353089   4.875571     1.51   0.133    -2.270967    16.97714
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.303124   .1646419    -7.91   0.000    -1.628117    -.978132
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   171) =    1.47
            Prob > F =    0.2325
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     174
-------------+------------------------------           F(  3,   170) =    5.68
       Model |  731.991603     3  243.997201           Prob > F      =  0.0010
    Residual |  7308.81299   170  42.9930176           R-squared     =  0.0910
-------------+------------------------------           Adj R-squared =  0.0750
       Total |   8040.8046   173  46.4786393           Root MSE      =  6.5569

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1623294   .0417098    -3.89   0.000    -.2446653   -.0799935
Fiscal_Rel~e |
         L1. |   .2107654   .0644468     3.27   0.001     .0835462    .3379845
        L2D. |  -.2458108   .1215774    -2.02   0.045    -.4858067   -.0058149
       _cons |   7.434881    1.94947     3.81   0.000     3.586594    11.28317
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.452               1                   0.5015
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  51.14667  Chi-sq( 9)  P-value =  6.6e-08

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     174
                                                       F(  3,   170) =    0.98
                                                       Prob > F      =  0.4027
                                                       R-squared     =  0.0910
                                                       Root MSE      =  6.5569

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1623294   .1040666    -1.56   0.121    -.3677586    .0430998
Fiscal_Rel~e |
         L1. |   .2107654   .1492271     1.41   0.160    -.0838114    .5053421
        L2D. |  -.2458108   .2247585    -1.09   0.276    -.6894878    .1978662
       _cons |   7.434881   4.880562     1.52   0.130     -2.19943    17.06919
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.298381   .1830824    -7.09   0.000    -1.659788   -.9369728
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   170) =    1.43
            Prob > F =    0.2412
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     173
-------------+------------------------------           F(  3,   169) =    4.23
       Model |  561.719255     3  187.239752           Prob > F      =  0.0065
    Residual |  7479.03219   169  44.2546283           R-squared     =  0.0699
-------------+------------------------------           Adj R-squared =  0.0533
       Total |  8040.75145   172  46.7485549           Root MSE      =  6.6524

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1453978   .0420089    -3.46   0.001    -.2283275   -.0624681
Fiscal_Rel~e |
         L1. |   .1765943    .064214     2.75   0.007     .0498295    .3033592
        L3D. |   .0427565   .1212657     0.35   0.725    -.1966343    .2821472
       _cons |   6.712545   1.968367     3.41   0.001     2.826791     10.5983
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.850               1                   0.3566
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  14.15744  Chi-sq( 9)  P-value =  .1168

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -1.21456   .2855337    -4.25   0.000    -1.778232   -.6508873
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   169) =    6.00
            Prob > F =    0.0030

.
.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     172
-------------+------------------------------           F(  3,   168) =    6.63
       Model |  851.598037     3  283.866012           Prob > F      =  0.0003
    Residual |  7189.09964   168  42.7922597           R-squared     =  0.1059
-------------+------------------------------           Adj R-squared =  0.0899
       Total |  8040.69767   171  47.0216238           Root MSE      =  6.5416

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1578725   .0411458    -3.84   0.000    -.2391019    -.076643
Fiscal_Rel~e |
         L1. |   .1987822   .0629149     3.16   0.002     .0745766    .3229878
        L4D. |   -.312138    .118801    -2.63   0.009    -.5466732   -.0776027
       _cons |   7.277227   1.929032     3.77   0.000      3.46896    11.08549
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.028               1                   0.3105
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   77.2492  Chi-sq( 9)  P-value =  5.7e-13

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     172
                                                       F(  3,   168) =    0.98
                                                       Prob > F      =  0.4053
                                                       R-squared     =  0.1059
                                                       Root MSE      =  6.5416

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1578725   .0975891    -1.62   0.108    -.3505314    .0347864
Fiscal_Rel~e |
         L1. |   .1987822   .1346091     1.48   0.142    -.0669611    .4645255
        L4D. |   -.312138   .2299255    -1.36   0.176    -.7660535    .1417775
       _cons |   7.277227   4.612939     1.58   0.117    -1.829569    16.38402
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.259131   .1770597    -7.11   0.000     -1.60868   -.9095825
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   168) =    1.46
            Prob > F =    0.2342
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     171
-------------+------------------------------           F(  3,   167) =    4.18
       Model |  561.449866     3  187.149955           Prob > F      =  0.0070
    Residual |  7479.19341   167  44.7855893           R-squared     =  0.0698
-------------+------------------------------           Adj R-squared =  0.0531
       Total |  8040.64327   170  47.2979016           Root MSE      =  6.6922

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1451112    .042395    -3.42   0.001    -.2288104   -.0614121
Fiscal_Rel~e |
         L1. |   .1764878   .0646735     2.73   0.007     .0488049    .3041707
        L5D. |   .0422052    .122898     0.34   0.732    -.2004287    .2848391
       _cons |   6.699658   1.988122     3.37   0.001     2.774567    10.62475
------------------------------------------------------------------------------
bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.570               1                   0.4502
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  37.59214  Chi-sq( 9)  P-value =  2.1e-05

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     171
                                                       F(  3,   167) =    1.88
                                                       Prob > F      =  0.1352
                                                       R-squared     =  0.0698
                                                       Root MSE      =  6.6922

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1451112   .0886481    -1.64   0.104    -.3201266    .0299041
Fiscal_Rel~e |
         L1. |   .1764878   .1199943     1.47   0.143    -.0604135    .4133891
        L5D. |   .0422052   .1667704     0.25   0.801    -.2870447    .3714551
       _cons |   6.699658    4.20866     1.59   0.113    -1.609378    15.00869
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.216224   .1811352    -6.71   0.000    -1.573834   -.8586142
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   167) =    1.55
            Prob > F =    0.2155
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -582.972   Log-Lik Full Model:           -576.145
D(171):                       1152.290   LR(3):                          13.654
                                         Prob > LR:                       0.003
R2:                              0.075   Adjusted R2:                     0.059
AIC:                             6.630   AIC*n:                        1160.290
BIC:                           269.111   BIC':                            1.840
BIC used by Stata:            1172.949   AIC used by Stata:            1160.290

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -580.139   Log-Lik Full Model:           -571.974
D(169):                       1143.948   LR(4):                          16.330
                                         Prob > LR:                       0.003
R2:                              0.090   Adjusted R2:                     0.068
AIC:                             6.632   AIC*n:                        1153.948
BIC:                           272.068   BIC':                            4.307
BIC used by Stata:            1169.743   AIC used by Stata:            1153.948

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -577.303   Log-Lik Full Model:           -566.538
D(167):                       1133.075   LR(5):                          21.530
                                         Prob > LR:                       0.001
R2:                              0.117   Adjusted R2:                     0.091
AIC:                             6.619   AIC*n:                        1145.075
BIC:                           272.476   BIC':                            4.236
BIC used by Stata:            1163.995   AIC used by Stata:            1145.075

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -574.464   Log-Lik Full Model:           -563.500
D(165):                       1127.000   LR(6):                          21.928
                                         Prob > LR:                       0.001
R2:                              0.120   Adjusted R2:                     0.088
AIC:                             6.634   AIC*n:                        1141.000
BIC:                           277.663   BIC':                            8.957
BIC used by Stata:            1163.032   AIC used by Stata:            1141.000

(Indices saved in matrix fs_mod1)
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -254.463   Log-Lik Full Model:           -251.268
D(63):                         502.536   LR(3):                           6.390
                                         Prob > LR:                       0.094
R2:                              0.091   Adjusted R2:                     0.048
AIC:                             7.620   AIC*n:                         510.536
BIC:                           237.641   BIC':                            6.224
BIC used by Stata:             519.355   AIC used by Stata:             510.536

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -254.463   Log-Lik Full Model:           -250.715
D(62):                         501.431   LR(4):                           7.496
                                         Prob > LR:                       0.112
R2:                              0.106   Adjusted R2:                     0.048
AIC:                             7.633   AIC*n:                         511.431
BIC:                           240.740   BIC':                            9.323
BIC used by Stata:             522.454   AIC used by Stata:             511.431

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_
> 2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -254.463   Log-Lik Full Model:           -249.583
D(61):                         499.167   LR(5):                           9.760
                                         Prob > LR:                       0.082
R2:                              0.136   Adjusted R2:                     0.065
AIC:                             7.629   AIC*n:                         511.167
BIC:                           242.680   BIC':                           11.263
BIC used by Stata:             524.395   AIC used by Stata:             511.167

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

      Source |       SS       df       MS              Number of obs =      67
-------------+------------------------------           F(  3,    63) =    2.10
       Model |  710.194439     3   236.73148           Prob > F      =  0.1089
    Residual |  7096.52198    63  112.643206           R-squared     =  0.0910
-------------+------------------------------           Adj R-squared =  0.0477
       Total |  7806.71642    66  118.283582           Root MSE      =  10.613

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1842408   .0734515    -2.51   0.015    -.3310218   -.0374598
Fiscal_Rel~e |
         L1. |   .1772989   .1111986     1.59   0.116    -.0449139    .3995116
         D1. |   .0996815   .1996164     0.50   0.619    -.2992201     .498583
       _cons |   9.901487   4.089582     2.42   0.018      1.72911    18.07386
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.393               1                   0.5308
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  13.73226  Chi-sq( 9)  P-value =  .1322

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9623214   .4500219    -2.14   0.036    -1.861618   -.0630245
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    63) =    3.15
            Prob > F =    0.0496
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE d.Fiscal_Reliance d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      66
-------------+------------------------------           F(  9,    56) =    1.43
       Model |  1455.99841     9  161.777601           Prob > F      =  0.1991
    Residual |  6350.44099    56  113.400732           R-squared     =  0.1865
-------------+------------------------------           Adj R-squared =  0.0558
       Total |  7806.43939    65  120.099068           Root MSE      =  10.649

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2114767   .0893045    -2.37   0.021    -.3903751   -.0325784
Fiscal_Rel~e |
         L1. |  -.0133634   .2011043    -0.07   0.947    -.4162239     .389497
log_gdp_pe~2 |
         L1. |   6.644272   7.167646     0.93   0.358    -7.714248    21.00279
REGION_DEM~E |
         L1. |   .0069563   .1327998     0.05   0.958    -.2590735    .2729862
WORLD_DEM_~E |
         L1. |   .1024793    .377484     0.27   0.787     -.653712    .8586707
Fiscal_Rel~e |
         D1. |  -.1164843   .2308128    -0.50   0.616    -.5788579    .3458893
log_gdp_pe~2 |
         D1. |   18.96043   34.09943     0.56   0.580    -49.34894    87.26979
REGION_DEM~E |
         D1. |   .8310264   .4621536     1.80   0.078    -.0947785    1.756831
WORLD_DEM_~E |
         D1. |    .598941   .8221125     0.73   0.469    -1.047948     2.24583
       _cons |  -44.85563    55.8446    -0.80   0.425    -156.7258    67.01455
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.034               1                   0.8527
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  64.80823  Chi-sq(54)  P-value =  .1489

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0631911   .9578199     0.07   0.948    -1.855553    1.981935
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    56) =    3.02
            Prob > F =    0.0566
```

```
test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,    56) =    0.48
            Prob > F =    0.7009


. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    56) =    1.79
            Prob > F =    0.1598
```

```
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -251.161   Log-Lik Full Model:           -244.349
D(56):                         488.697   LR(9):                          13.624
                                         Prob > LR:                       0.136
R2:                              0.187   Adjusted R2:                     0.056
AIC:                             7.708   AIC*n:                         508.697
BIC:                           254.076   BIC':                           24.083
BIC used by Stata:             530.594   AIC used by Stata:             508.697

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE EQUITORIAL GUINNEA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

EQUATORIAL GUINNEA UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        37

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.061            -4.270            -3.552            -3.211
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5678

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2054926   .0997004    -2.06   0.047    -.4083347   -.0026505
         LD. |  -.0110614    .037203    -0.30   0.768    -.0867514    .0646286
      _trend |   .0901356   .0459607     1.96   0.058    -.0033723    .1836434
       _cons |   2.261485   1.233886     1.83   0.076    -.2488756    4.771846
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller D.polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        36

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.704            -4.279            -3.556            -3.214
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.polity_s  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  D.polity_s |
         L1. |  -1.035534   .1815422    -5.70   0.000    -1.405324   -.6657449
         LD. |   .0001236   .0398155     0.00   0.998     -.080978    .0812252
      _trend |   .0121115   .0293208     0.41   0.682    -.0476131     .071836
       _cons |   .0513206   .6503488     0.08   0.938    -1.273397    1.376038
------------------------------------------------------------------------------

dfuller D.polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        36

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.780            -3.675            -2.969            -2.617
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
 D2.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         LD. |  -1.024265   .1772109    -5.78   0.000    -1.384803    -.663727
        LD2. |  -.0047847   .0375205    -0.13   0.899    -.0811207    .0715513
       _cons |    .290499   .2923572     0.99   0.328    -.3043062    .8853042
------------------------------------------------------------------------------
```

Unit Root Test on Fiscal Reliance

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              0.905            -4.297            -3.564            -3.218
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 1.0000

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |   .0194233   .0214517     0.91   0.372     -.024387    .0632336
         LD. |  -.1676814   .1327934    -1.26   0.216    -.4388818     .103519
      _trend |    .061046    .069001     0.88   0.383    -.0798728    .2019648
       _cons |  -.4515664   1.084556    -0.42   0.680    -2.666525    1.763392
------------------------------------------------------------------------------

. dfuller Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              2.447            -3.689            -2.975            -2.619
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9990

------------------------------------------------------------------------------
D.           |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |   .0338823   .0138465     2.45   0.020     .0056423    .0621223
         LD. |  -.1529757   .1312865    -1.17   0.253    -.4207362    .1147849
       _cons |   .4010865   .4956685     0.81   0.425     -.609836    1.412009
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        32

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.573            -4.316            -3.572            -3.223
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0322

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -.9951458   .2785461    -3.57   0.001    -1.565722   -.4245701
         LD. |  -.1862254    .135571    -1.37   0.180      -.46393    .0914792
      _trend |   .0837103   .0564678     1.48   0.149    -.0319586    .1993793
       _cons |  -.7088735   .9626425    -0.74   0.468    -2.680757     1.26301
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        32

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.375            -3.702            -2.980            -2.622
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0118

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -.7243751   .2145992    -3.38   0.002     -1.16328   -.2854704
        LD2. |  -.2829458   .1212682    -2.33   0.027    -.5309671   -.0349246
       _cons |    .502519   .5192554     0.97   0.341    -.5594775    1.564515
------------------------------------------------------------------------------
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon 1991.

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        38
maximum lag: 1                                      F(  1,    36)  =     17.72
                                                    Prob > F       =    0.0002

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .0916812    .021777     4.21   0.000     .0475153    .1358471
       _cons |   17.55146   1.742726    10.07   0.000     14.01704    21.08587
------------------------------------------------------------------------------

predict residual, res
(4 missing values generated)

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.027            -4.297            -3.564            -3.218
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9404

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.1567342   .1526683    -1.03   0.313    -.4685245    .1550561
         LD. |   .0002361    .040301     0.01   0.995    -.0820696    .0825418
      _trend |   .0226561   .0327235     0.69   0.494    -.0441742    .0894863
       _cons |  -.453168    .8254131    -0.55   0.587    -2.138887     1.23255
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        34

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.806            -3.689            -2.975            -2.619
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8174

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.1086583   .1348161    -0.81   0.426    -.3836176     .166301
         LD. |   .0060216   .0390927     0.15   0.879    -.0737085    .0857517
       _cons |   .0604786   .3587571     0.17   0.867    -.6712113    .7921684
------------------------------------------------------------------------------
```

Test statistic: -0.81

Critical Values:

-3.9001 with no trend. Therefore, there is no evidence of co-integration.

ECM REGRESSIONS

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      36
-------------+------------------------------           F(  3,    32) =   91.10
       Model |   1871.8034     3  623.934467           Prob > F      =  0.0000
    Residual |  219.168823    32  6.84902571           R-squared     =  0.8952
-------------+------------------------------           Adj R-squared =  0.8854
       Total |  2090.97222    35  59.7420635           Root MSE      =  2.6171

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.9502122   .0577408   -16.46   0.000    -1.067826    -.832598
Fiscal_Rel~e |
         L1. |   .1024508   .0143721     7.13   0.000     .0731758    .1317259
         D1. |   .1613854   .1220828     1.32   0.196     -.087289    .4100598
       _cons |    15.0227   1.120944    13.40   0.000     12.73941    17.30599
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |         18.712               1                   0.0000
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  32.40879  Chi-sq( 9)  P-value =  1.7e-04
```

Both Serial Correlation and Heteroskedasticity are detected. Therefore, the analysis is rerun using Newey West Standard Errors.

```
newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        36
maximum lag: 1                                      F(  3,    32)  =     54.61
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.9502122   .0801666   -11.85   0.000    -1.113506   -.7869181
Fiscal_Rel~e |
         L1. |   .1024508   .0129419     7.92   0.000     .0760891    .1288126
         D1. |   .1613854   .1282926     1.26   0.218     -.099938    .4227088
       _cons |    15.0227   1.155867    13.00   0.000     12.66827    17.37712
------------------------------------------------------------------------------
```

```
nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1078189   .0097174   -11.10   0.000    -.1276125   -.0880253
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    32) =   70.40
            Prob > F =    0.0000
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      35
-------------+------------------------------           F(  3,    31) =    0.62
       Model |     5.52042     3     1.84014           Prob > F      =  0.6057
    Residual |  91.6224371    31  2.95556249           R-squared     =  0.0568
-------------+------------------------------           Adj R-squared = -0.0344
       Total |  97.1428571    34  2.85714286           Root MSE      =  1.7192

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0732301   .1150259    -0.64   0.529     -.307827    .1613668
Fiscal_Rel~e |
         L1. |   -.000846   .0157744    -0.05   0.958    -.0330181     .031326
         LD. |   .1009641   .0863548     1.17   0.251    -.0751577    .2770858
       _cons |   1.494331   1.857387     0.80   0.427    -2.293835    5.282498
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.051               1                   0.8220
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  24.13146  Chi-sq( 8)  P-value =  .0022


Heteroskedasticity detected.  Therefore, the regression is rerun with robust standard
errors.

regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      35
                                                       F(  3,    31) =    0.33
                                                       Prob > F      =  0.8048
                                                       R-squared     =  0.0568
                                                       Root MSE      =  1.7192

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0732301   .0818219    -0.89   0.378     -.240107    .0936468
Fiscal_Rel~e |
         L1. |   -.000846   .0045576    -0.19   0.854    -.0101412    .0084492
         LD. |   .1009641   .1145149     0.88   0.385    -.1325907    .3345188
       _cons |   1.494331   1.582777     0.94   0.352    -1.733764    4.722426
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0115529   .0666861     0.17   0.864    -.1244543    .1475601
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    31) =    0.49
            Prob > F =    0.6165
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      33
-------------+------------------------------           F(  3,    29) =    0.42
       Model |  4.00275726     3  1.33425242           Prob > F      =  0.7427
    Residual |  92.9669397    29  3.20575654           R-squared     =  0.0413
-------------+------------------------------           Adj R-squared = -0.0579
       Total |   96.969697    32  3.03030303           Root MSE      =  1.7905

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0196468   .1312302    -0.15   0.882    -.2880427     .248749
Fiscal_Rel~e |
         L1. |   .0036507   .0159717     0.23   0.821    -.0290151    .0363165
        L2D. |  -.0924437   .1043745    -0.89   0.383    -.3059136    .1210262
       _cons |   .7304721   2.099919     0.35   0.730    -3.564344    5.025288
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.082               1                   0.7740
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  25.51964  Chi-sq( 8)  P-value =  .0013


Heteroskedasticity is uncovered.  Therefore, rerun with robust standard errors.

regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      33
                                                       F(  3,    29) =    0.32
                                                       Prob > F      =  0.8132
                                                       R-squared     =  0.0413
                                                       Root MSE      =  1.7905

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0196468   .0340738    -0.58   0.569    -.0893356    .0500419
Fiscal_Rel~e |
         L1. |   .0036507   .0045613     0.80   0.430    -.0056782    .0129795
        L2D. |  -.0924437   .1095215    -0.84   0.406    -.3164403    .1315529
       _cons |   .7304721   .8561502     0.85   0.401    -1.020552    2.481496
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1858141   .2500048    -0.74   0.463    -.6971313    .3255032
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    29) =    0.32
            Prob > F =    0.7258
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      32
-------------+------------------------------           F(  3,    28) =    0.37
       Model |  3.73425436     3  1.24475145           Prob > F      =  0.7723
    Residual |  93.1407456    28   3.3264552           R-squared     =  0.0385
-------------+------------------------------           Adj R-squared = -0.0645
       Total |      96.875    31       3.125           Root MSE      =  1.8239

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0674273   .1202463    -0.56   0.579    -.3137407    .1788861
Fiscal_Rel~e |
         L1. |  -.0001005   .0169562    -0.01   0.995    -.0348336    .0346326
        L3D. |    .073753   .0918626     0.80   0.429    -.1144189    .2619249
       _cons |   1.454956   1.959332     0.74   0.464    -2.558554    5.468465
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.078               1                   0.7803
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        32  Chi-sq( 8)  P-value =  9.3e-05


Heteroskedasticity detected.  Regression rerun with robust standard errors.

regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      32
                                                       F(  3,    28) =    0.32
                                                       Prob > F      =  0.8143
                                                       R-squared     =  0.0385
                                                       Root MSE      =  1.8239

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0674273   .0706282    -0.95   0.348    -.2121025    .0772479
Fiscal_Rel~e |
         L1. |  -.0001005   .0025124    -0.04   0.968    -.0052469    .0050459
        L3D. |    .073753   .0865707     0.85   0.401     -.103579     .251085
       _cons |   1.454956   1.498114     0.97   0.340    -1.613792    4.523703
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0014906   .0375206     0.04   0.969    -.0753669    .0783482
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    28) =    0.47
            Prob > F =    0.6285
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      31
-------------+------------------------------           F(  3,    27) =    0.16
       Model |  1.72086927     3  .573623091           Prob > F      =  0.9204
    Residual |  95.0533243    27  3.52049349           R-squared     =  0.0178
-------------+------------------------------           Adj R-squared = -0.0914
       Total |  96.7741935    30  3.22580645           Root MSE      =  1.8763

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0691621   .1241466    -0.56   0.582    -.3238899    .1855657
Fiscal_Rel~e |
         L1. |    .004024   .0175648     0.23   0.821     -.032016     .040064
        L4D. |  -.0059012   .0969283    -0.06   0.952    -.2047815    .1929792
       _cons |   1.511916   2.029137     0.75   0.463    -2.651529     5.67536
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.019               1                   0.8908
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  21.23968  Chi-sq( 7)  P-value =  .0034


Heteroskedasticity detected.  The regressions rerun with robust standard errors.


regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      31
                                                       F(  3,    27) =    0.31
                                                       Prob > F      =  0.8205
                                                       R-squared     =  0.0178
                                                       Root MSE      =  1.8763

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0691621   .0723151    -0.96   0.347    -.2175405    .0792163
Fiscal_Rel~e |
         L1. |    .004024   .0044603     0.90   0.375    -.0051278    .0131758
        L4D. |  -.0059012   .0080254    -0.74   0.468    -.0223679    .0105655
       _cons |   1.511916   1.574007     0.96   0.345    -1.717679    4.741511
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0581821   .0191669    -3.04   0.005    -.0975094   -.0188549
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    27) =    0.46
            Prob > F =    0.6373
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      30
-------------+------------------------------           F(  3,    26) =    0.17
       Model |  1.90079571     3  .63359857            Prob > F      =  0.9131
    Residual |   94.765871    26  3.64484119           R-squared     =  0.0197
-------------+------------------------------           Adj R-squared = -0.0935
       Total |  96.6666667    29  3.33333333           Root MSE      =  1.9091

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0746713   .1272127    -0.59   0.562    -.3361608    .1868182
Fiscal_Rel~e |
         L1. |   .0051226   .0202116     0.25   0.802     -.036423    .0466682
        L5D. |   -.013239   .1080973    -0.12   0.903    -.2354363    .2089582
       _cons |   1.617789   2.084216     0.78   0.445    -2.666379    5.901956
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.019               1                   0.8902
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  20.55221  Chi-sq( 7)  P-value =  .0045
```

Heteroskedasticity detected and the regressions rerun with robust standard errors.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      30
                                                       F(  3,    26) =    0.31
                                                       Prob > F      =  0.8199
                                                       R-squared     =  0.0197
                                                       Root MSE      =  1.9091

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0746713   .0780363    -0.96   0.347    -.2350773    .0857346
Fiscal_Rel~e |
         L1. |   .0051226   .0056629     0.90   0.374    -.0065176    .0167628
        L5D. |   -.013239   .0161399    -0.82   0.420    -.0464151     .019937
       _cons |   1.617789    1.68387     0.96   0.346    -1.843456    5.079033
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0686019   .0228852    -3.00   0.006    -.1156431   -.0215606
------------------------------------------------------------------------------
```

```
. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    26) =    0.46
            Prob > F =    0.6375
```

SEARCHING FOR THE BEST DISTRIBUTED LAG MODEL

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -124.195   Log-Lik Full Model:           -83.596
D(32):                         167.191   LR(3):                         81.200
                                         Prob > LR:                      0.000
R2:                              0.895   Adjusted R2:                    0.885
AIC:                             4.866   AIC*n:                        175.191
BIC:                            52.519   BIC':                         -70.449
BIC used by Stata:             181.525   AIC used by Stata:            175.191

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -66.076   Log-Lik Full Model:           -64.148
D(29):                         128.296   LR(4):                          3.857
                                         Prob > LR:                      0.426
R2:                              0.107   Adjusted R2:                   -0.016
AIC:                             4.068   AIC*n:                        138.296
BIC:                            26.031   BIC':                          10.249
BIC used by Stata:             145.927   AIC used by Stata:            138.296

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -63.129   Log-Lik Full Model:           -59.108
D(26):                         118.216   LR(5):                          8.042
                                         Prob > LR:                      0.154
R2:                              0.222   Adjusted R2:                    0.073
AIC:                             4.069   AIC*n:                        130.216
BIC:                            28.107   BIC':                           9.287
BIC used by Stata:             139.011   AIC used by Stata:            130.216

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -60.119   Log-Lik Full Model:           -55.912
D(23):                         111.825   LR(6):                          8.414
                                         Prob > LR:                      0.209
R2:                              0.245   Adjusted R2:                    0.047
AIC:                             4.194   AIC*n:                        125.825
BIC:                            33.597   BIC':                          11.993
BIC used by Stata:             135.633   AIC used by Stata:            125.825

(Indices saved in matrix fs_mod1)
```

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance

fitstat, saving(mod1)

```
Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -57.043   Log-Lik Full Model:            -29.760
D(20):                          59.520   LR(7):                          54.566
                                         Prob > LR:                       0.000
R2:                              0.858   Adjusted R2:                     0.808
AIC:                             2.697   AIC*n:                          75.520
BIC:                            -7.125   BIC':                          -31.240
BIC used by Stata:              86.177   AIC used by Stata:              75.520

(Indices saved in matrix fs_mod1)
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance
l.5.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -53.894   Log-Lik Full Model:            -26.920
D(17):                          53.840   LR(8):                          53.949
                                         Prob > LR:                       0.000
R2:                              0.874   Adjusted R2:                     0.815
AIC:                             2.763   AIC*n:                          71.840
BIC:                            -1.548   BIC':                          -27.885
BIC used by Stata:              83.162   AIC used by Stata:              71.840

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      28
-------------+------------------------------           F(  7,    20) =   17.20
       Model |  82.6924867     7  11.8132124           Prob > F      =  0.0000
    Residual |  13.7360847    20  .686804236           R-squared     =  0.8576
-------------+------------------------------           Adj R-squared =  0.8077
       Total |  96.4285714    27  3.57142857           Root MSE      =  .82874

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.5539994   .0956175    -5.79   0.000    -.7534541   -.3545448
Fiscal_Rel~e |
         L1. |   .0275499    .010999     2.50   0.021     .0046064    .0504935
         D1. |   .8332691   .1050855     7.93   0.000     .6140646    1.052474
         LD. |   1.239786    .131095     9.46   0.000     .9663266    1.513245
        L2D. |    .039041   .0982755     0.40   0.695    -.165958      .24404
        L3D. |   .4631613   .0875121     5.29   0.000     .2806143    .6457084
        L4D. |  -.3824758   .0735319    -5.20   0.000    -.5358608   -.2290909
       _cons |   8.120886   1.439653     5.64   0.000     5.117823    11.12395
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.956               1                   0.0467
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        28  Chi-sq(11)  P-value =  .0032
```

Serial Correlation and Heteroskedasticity detected. Regression rerun using Newey West standard errors.

```
newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        28
maximum lag: 1                                      F(  7,    20)  =      7.43
                                                    Prob > F       =    0.0002

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.5539994   .1239796    -4.47   0.000    -.8126163   -.2953826
Fiscal_Rel~e |
         L1. |   .0275499   .0092853     2.97   0.008      .008181    .0469188
         D1. |   .8332691   .1881183     4.43   0.000     .4408612    1.225677
         LD. |   1.239786   .2538863     4.88   0.000     .7101883    1.769384
        L2D. |    .039041   .0765142     0.51   0.615    -.1205649    .1986468
        L3D. |   .4631613   .0860914     5.38   0.000     .2835777     .642745
        L4D. |  -.3824758   .0978452    -3.91   0.001    -.5865773   -.1783743
       _cons |   8.120886   1.939349     4.19   0.000     4.075475     12.1663
------------------------------------------------------------------------------
```

```
nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0497291   .0115279    -4.31   0.000     -.073776   -.0256823
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    20) =   10.07
            Prob > F =    0.0009

test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance
l.4.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0
 ( 5)  L4D.Fiscal_Reliance = 0

       F(  5,    20) =    6.88
            Prob > F =    0.0007
```

DISTRIBUTED LAG MODEL WITH CONTROLS ADDED

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      28
-------------+------------------------------           F( 13,    14) =   26.14
       Model |  92.6135119    13   7.1241163           Prob > F      =  0.0000
    Residual |  3.81505951    14  .272504251           R-squared     =  0.9604
-------------+------------------------------           Adj R-squared =  0.9237
       Total |  96.4285714    27  3.57142857           Root MSE      =  .52202

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.7298287   .0974259    -7.49   0.000    -.9387866   -.5208708
Fiscal_Rel~e |
         L1. |   .0050609   .0300705     0.17   0.869    -.0594339    .0695556
         D1. |   .6388108   .1205038     5.30   0.000     .3803558    .8972658
         LD. |   1.087941   .1273786     8.54   0.000     .8147413    1.361141
        L2D. |   .1379373   .0807448     1.71   0.110    -.0352432    .3111177
        L3D. |   .4910847   .0607995     8.08   0.000     .3606828    .6214866
        L4D. |  -.2212242   .0761055    -2.91   0.011    -.3844543   -.0579942
log_gdp_pe~2 |
         L1. |   .3617961   .8111491     0.45   0.662    -1.377946    2.101538
REGION_DEM~E |
         L1. |   .4707453   .1053596     4.47   0.001     .2447716    .6967191
WORLD_DEM_~E |
         L1. |  -.1173293   .0543775    -2.16   0.049    -.2339575   -.0007012
Civil_War_~h |
         L1. |  (dropped)
log_gdp_pe~2 |
         D1. |  -.2252117   1.253578    -0.18   0.860    -2.913869    2.463445
REGION_DEM~E |
         D1. |   .2368465    .083429     2.84   0.013      .057909     .415784
WORLD_DEM_~E |
         D1. |  -.0365925   .1640937    -0.22   0.827    -.3885384    .3153535
       _cons |   7.557815   7.410885     1.02   0.325    -8.336952    23.45258
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.484               1                   0.0342
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        28  Chi-sq(27)  P-value =   .411

.
```

```
SERIAL CORRELATION DETECTED. NEWEY WEST STANDARD ERRORS REGRESSION RUN.

newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE, lag(1) force
note: L.Civil_War_Gledistsch dropped because of collinearity

Regression with Newey-West standard errors         Number of obs  =        28
maximum lag: 1                                     F( 13,    14)  =     50.38
                                                   Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.7298287   .0888529    -8.21   0.000    -.9203992   -.5392582
Fiscal_Rel~e |
         L1. |   .0050609   .0238982     0.21   0.835    -.0461956    .0563173
         D1. |   .6388108   .1694112     3.77   0.002     .2754599    1.002162
         LD. |   1.087941   .1676061     6.49   0.000     .7284618    1.447421
        L2D. |   .1379373    .063862     2.16   0.049     .0009669    .2749076
        L3D. |   .4910847   .0420338    11.68   0.000     .4009312    .5812382
        L4D. |  -.2212242   .1046977    -2.11   0.053    -.4457785      .00333
log_gdp_pe~2 |
         L1. |   .3617961   .6090514     0.59   0.562    -.9444893    1.668081
REGION_DEM~E |
         L1. |   .4707453   .1648943     2.85   0.013     .1170823    .8244084
WORLD_DEM_~E |
         L1. |  -.1173293   .0402888    -2.91   0.011    -.2037402   -.0309185
log_gdp_pe~2 |
         D1. |  -.2252117   1.206115    -0.19   0.855    -2.812071    2.361647
REGION_DEM~E |
         D1. |   .2368465   .0829677     2.85   0.013     .0588986    .4147944
WORLD_DEM_~E |
         D1. |  -.0365925   .1424155    -0.26   0.801    -.3420434    .2688584
       _cons |   7.557815   5.121056     1.48   0.162    -3.425758    18.54139
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0069343   .0331087    -0.21   0.837    -.0779455    .0640769
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    14) =   41.90
            Prob > F =    0.0000

test l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance
l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance

 ( 1)  L.Fiscal_Reliance = 0
 ( 2)  D.Fiscal_Reliance = 0
 ( 3)  LD.Fiscal_Reliance = 0
 ( 4)  L2D.Fiscal_Reliance = 0
 ( 5)  L3D.Fiscal_Reliance = 0
 ( 6)  L4D.Fiscal_Reliance = 0

       F(  6,    14) =   29.28
            Prob > F =    0.0000
```

```
test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,    14) =    5.29
            Prob > F =    0.0120

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    14) =    4.37
            Prob > F =    0.0227


fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -57.043   Log-Lik Full Model:            -11.825
D(13):                          23.650   LR(13):                         90.436
                                         Prob > LR:                       0.000
R2:                              0.960   Adjusted R2:                     0.924
AIC:                             1.916   AIC*n:                          53.650
BIC:                           -19.669   BIC':                          -47.117
BIC used by Stata:              70.300   AIC used by Stata:              51.650

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE GABON TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

GABON UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.128            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5306

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1097484   .0515816    -2.13   0.039    -.2139195   -.0055773
         LD. |   .3575026   .1414466     2.53   0.015     .0718455    .6431597
      _trend |   .0900039   .0440951     2.04   0.048      .000952    .1790558
       _cons |  -.2753132   .8953412    -0.31   0.760    -2.083491    1.532865
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller D.polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.360            -4.205            -3.524            -3.194
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0025

------------------------------------------------------------------------------
D2.polity_s  |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  D.polity_s |
         L1. |  -.7939091   .1820865    -4.36   0.000     -1.16192   -.4258986
         LD. |   .1706334   .1562113     1.09   0.281    -.1450815    .4863483
      _trend |   .0348928   .0363275     0.96   0.343    -.0385278    .1083135
       _cons |   -.549331   .9531185    -0.58   0.568    -2.475655    1.376993
------------------------------------------------------------------------------

dfuller D.polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.258            -3.621            -2.947            -2.607
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0005

------------------------------------------------------------------------------
 D2.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         LD. |  -.7525151   .1767459    -4.26   0.000    -1.109461   -.3955695
        LD2. |   .1489848   .1544308     0.96   0.340    -.1628945    .4608641
       _cons |   .2565392   .4517955     0.57   0.573    -.6558803    1.168959
------------------------------------------------------------------------------

.
```

Unit Root Test on Fiscal Reliance

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.697            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.7520

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.1407025   .0828953    -1.70   0.097    -.3081129     .026708
         LD. |   .1050865   .1574444     0.67   0.508    -.2128789    .4230518
      _trend |    .112877   .1569742     0.72   0.476    -.2041388    .4298927
       _cons |    3.85514   2.837204     1.36   0.182    -1.874709     9.58499
------------------------------------------------------------------------------

. dfuller Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.778            -3.614            -2.944            -2.606
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3917

------------------------------------------------------------------------------
D.           |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.0954989   .0537243    -1.78   0.083     -.203919    .0129211
         LD. |   .0736751    .150391     0.49   0.627    -.2298263    .3771765
       _cons |   4.807493   2.494652     1.93   0.061    -.2269189    9.841905
------------------------------------------------------------------------------

.

.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.781            -4.205            -3.524            -3.194
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0005

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.050082   .2196529    -4.78   0.000    -1.494017   -.6061466
         LD. |   .0798292   .1575996     0.51   0.615    -.2386914    .3983498
      _trend |  -.1043452   .1109469    -0.94   0.353    -.3285773    .1198869
       _cons |   3.645348   3.004013     1.21   0.232    -2.425989    9.716685
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.700            -3.621            -2.947            -2.607
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0001

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.019853   .2169825    -4.70   0.000    -1.458059   -.5816483
        LD2. |   .0657168   .1566625     0.42   0.677    -.2506696    .3821032
       _cons |   1.155533   1.417747     0.82   0.420    -1.707664    4.018731
------------------------------------------------------------------------------

.
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon 1991.

Polity and Fiscal Reliance

newey polity_s Fiscal_Reliance, lag(1) force

```
Regression with Newey-West standard errors         Number of obs  =        47
maximum lag: 1                                     F(  1,    45)  =      2.66
                                                   Prob > F       =    0.1100

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .1172262   .0719111     1.63   0.110    -.0276102    .2620625
       _cons |   10.95133   2.171441     5.04   0.000     6.577827    15.32484
------------------------------------------------------------------------------
```

predict residual, res

dfuller residual, regress trend lags(1)

```
Augmented Dickey-Fuller test for unit root        Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.849            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6806

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0836435   .0452318    -1.85   0.072     -.174991    .0077041
         LD. |   .3263937   .1436143     2.27   0.028     .0363588    .6164286
      _trend |   .0705594   .0377755     1.87   0.069    -.0057298    .1468487
       _cons |  -1.584042   1.003279    -1.58   0.122    -3.610204    .4421199
------------------------------------------------------------------------------
```

Test statistic: -1.85

Critical Values:

-3.4959 with trend. Therefore, there is no evidence of co-integration.

Rerunning this regressions with 2 lags of the differenced residual is not significant, so we go with only 1 lag.

ECM REGRESSIONS

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      46
-------------+------------------------------           F(  3,    42) =    1.05
       Model |  29.2581601     3  9.75272005           Prob > F      =  0.3813
    Residual |  390.850536    42  9.30596513           R-squared     =  0.0696
-------------+------------------------------           Adj R-squared =  0.0032
       Total |  420.108696    45  9.33574879           Root MSE      =  3.0506

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0237221   .0421784    -0.56   0.577    -.1088415    .0613974
Fiscal_Rel~e |
         L1. |   .0193064   .0191064     1.01   0.318     -.019252    .0578647
         D1. |   .0839867   .0530896     1.58   0.121    -.0231525    .1911258
       _cons |  -.1536407   .9799708    -0.16   0.876    -2.131302    1.824021
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          6.029               1                   0.0141
---------------------------------------------------------------------------
                        H0: no serial correlation
whitetst

White's general test statistic :  16.24696  Chi-sq( 9)  P-value =  .0619

newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors         Number of obs  =        46
maximum lag: 1                                     F(  3,    42)  =      0.67
                                                   Prob > F       =    0.5780

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0237221   .0257207    -0.92   0.362    -.0756286    .0281844
Fiscal_Rel~e |
         L1. |   .0193064   .0163257     1.18   0.244    -.0136403     .052253
         D1. |   .0839867   .0772695     1.09   0.283    -.0719496    .2399229
       _cons |  -.1536407   .8641457    -0.18   0.860    -1.897557    1.590276
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8138562   .7842363    -1.04   0.305    -2.396509    .7687967
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    42) =    0.76
            Prob > F =    0.4730
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      45
-------------+------------------------------           F(  3,    41) =    0.27
       Model |  8.19373458     3  2.73124486           Prob > F      =  0.8453
    Residual |  411.806265    41  10.0440553           R-squared     =  0.0195
-------------+------------------------------           Adj R-squared = -0.0522
       Total |         420    44  9.54545455           Root MSE      =  3.1692

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0247921   .0439184    -0.56   0.575    -.1134871    .0639028
Fiscal_Rel~e |
         L1. |   .0113587   .0200228     0.57   0.574    -.0290782    .0517956
         LD. |   .0259551   .0541096     0.48   0.634    -.0833214    .1352315
       _cons |   .2281759   1.008542     0.23   0.822    -1.808615    2.264967
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          5.661               1                   0.0173
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :   15.7828  Chi-sq( 9)  P-value =  .0716

newey D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        45
maximum lag: 1                                      F(  3,    41)  =      0.59
                                                    Prob > F       =    0.6271

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0247921   .0266866    -0.93   0.358    -.0786869    .0291026
Fiscal_Rel~e |
         L1. |   .0113587    .017286     0.66   0.515    -.0235511    .0462684
         LD. |   .0259551     .04403     0.59   0.559    -.0629653    .1148754
       _cons |   .2281759   1.182722     0.19   0.848     -2.16038    2.616731
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4581559   .7472246    -0.61   0.543    -1.967207    1.050895
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    41) =    0.53
            Prob > F =    0.5936
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      44
-------------+------------------------------           F(  3,    40) =    0.19
       Model |  5.86719581     3  1.95573194           Prob > F      =  0.9033
    Residual |  414.019168    40  10.3504792           R-squared     =  0.0140
-------------+------------------------------           Adj R-squared = -0.0600
       Total |  419.886364    43  9.76479915           Root MSE      =  3.2172

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0257467   .0446454    -0.58   0.567    -.1159783     .064485
Fiscal_Rel~e |
         L1. |    .012541    .021037     0.60   0.554    -.0299763    .0550584
        L2D. |   .0045612   .0550578     0.08   0.934    -.1067147    .1158371
       _cons |   .2179736   1.051773     0.21   0.837    -1.907738    2.343685
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          5.908               1                   0.0151
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  12.85637  Chi-sq( 9)  P-value =  .1692

newey D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        44
maximum lag: 1                                      F(  3,    40)  =      0.46
                                                    Prob > F       =    0.7089

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0257467   .0260107    -0.99   0.328    -.0783162    .0268228
Fiscal_Rel~e |
         L1. |    .012541   .0191428     0.66   0.516    -.0261481    .0512302
        L2D. |   .0045612   .0248465     0.18   0.855    -.0456554    .0547778
       _cons |   .2179736   1.264488     0.17   0.864    -2.337652    2.773599
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4870931   .8059582    -0.60   0.549    -2.115995    1.141809
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    40) =    0.60
            Prob > F =    0.5540
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      43
-------------+------------------------------           F(  3,    39) =    2.34
       Model |  64.0250893     3  21.3416964           Prob > F      =  0.0883
    Residual |  355.742353    39  9.12159878           R-squared     =  0.1525
-------------+------------------------------           Adj R-squared =  0.0873
       Total |  419.767442    42   9.9944629           Root MSE      =  3.0202

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0265328   .0420099    -0.63   0.531    -.1115059    .0584403
Fiscal_Rel~e |
         L1. |   .0188525   .0204263     0.92   0.362    -.0224636    .0601686
        L3D. |  -.1303526   .0515542    -2.53   0.016    -.2346308   -.0260744
       _cons |   .1341956   1.017311     0.13   0.896    -1.923511    2.191902
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          2.740               1                   0.0979
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  27.66712  Chi-sq( 9)  P-value =  .0011

newey D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        43
maximum lag: 1                                      F(  3,    39)  =      0.80
                                                    Prob > F       =    0.4995

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0265328   .0247314    -1.07   0.290    -.0765569    .0234913
Fiscal_Rel~e |
         L1. |   .0188525   .0202987     0.93   0.359    -.0222056    .0599106
        L3D. |  -.1303526    .100442    -1.30   0.202    -.3335157    .0728105
       _cons |   .1341956   1.113336     0.12   0.905     -2.11774    2.386131
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7105358   .6955035    -1.02   0.313    -2.117324    .6962528
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    39) =    0.66
            Prob > F =    0.5203
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      42
-------------+------------------------------           F(  3,    38) =    2.42
       Model |  67.4254674     3  22.4751558           Prob > F      =  0.0806
    Residual |   352.21739    38  9.26887868           R-squared     =  0.1607
-------------+------------------------------           Adj R-squared =  0.0944
       Total |  419.642857    41  10.2351916           Root MSE      =  3.0445

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0376143   .0427053    -0.88   0.384    -.1240666     .048838
Fiscal_Rel~e |
         L1. |   .0217724   .0215656     1.01   0.319    -.0218849    .0654298
        L4D. |  -.1352342   .0523726    -2.58   0.014    -.2412571   -.0292113
       _cons |   .1839755   1.061105     0.17   0.863     -1.96412    2.332071
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.817               1                   0.1777
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  11.47893  Chi-sq( 9)  P-value =  .2443

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5788343   .7324335    -0.79   0.434    -2.061568    .9038999
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    38) =    0.69
            Prob > F =    0.5056
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  3,    37) =    0.40
       Model |  13.0837547     3  4.36125156           Prob > F      =  0.7559
    Residual |   406.42844    37  10.9845524           R-squared     =  0.0312
-------------+------------------------------           Adj R-squared = -0.0474
       Total |  419.512195    40  10.4878049           Root MSE      =  3.3143

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0335757   .0471996    -0.71   0.481    -.1292112    .0620598
Fiscal_Rel~e |
         L1. |   .0180579   .0248339     0.73   0.472    -.0322602    .0683761
        L5D. |  -.0488436   .0589561    -0.83   0.413    -.1683001    .0706128
       _cons |   .1689323   1.202416     0.14   0.889    -2.267394    2.605258
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.491               1                   0.0341
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  14.79577  Chi-sq( 9)  P-value =  .0967

newey D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        41
maximum lag: 1                                      F(  3,    37)  =      0.71
                                                    Prob > F       =    0.5523

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0335757   .0299288    -1.12   0.269    -.0942173    .0270659
Fiscal_Rel~e |
         L1. |   .0180579   .0258364     0.70   0.489    -.0342917    .0704075
        L5D. |  -.0488436   .0378292    -1.29   0.205    -.1254929    .0278057
       _cons |   .1689323   1.588123     0.11   0.916     -3.04891    3.386775
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5378272   .7519272    -0.72   0.479    -2.061376    .9857221
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    37) =    0.68
            Prob > F =    0.5111
```

SEARCHING FOR THE BEST DISTRIBUTED LAG MODEL

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -116.144   Log-Lik Full Model:           -114.484
D(42):                         228.968   LR(3):                           3.321
                                         Prob > LR:                       0.345
R2:                              0.070   Adjusted R2:                     0.003
AIC:                             5.151   AIC*n:                         236.968
BIC:                            68.165   BIC':                            8.165
BIC used by Stata:             244.282   AIC used by Stata:             236.968

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -114.108   Log-Lik Full Model:           -112.395
D(40):                         224.791   LR(4):                           3.425
                                         Prob > LR:                       0.489
R2:                              0.073   Adjusted R2:                    -0.019
AIC:                             5.218   AIC*n:                         234.791
BIC:                            72.524   BIC':                           11.801
BIC used by Stata:             243.824   AIC used by Stata:             234.791

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -112.061   Log-Lik Full Model:           -110.366
D(38):                         220.732   LR(5):                           3.389
                                         Prob > LR:                       0.640
R2:                              0.074   Adjusted R2:                    -0.048
AIC:                             5.289   AIC*n:                         232.732
BIC:                            76.933   BIC':                           15.532
BIC used by Stata:             243.437   AIC used by Stata:             232.732

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -110.002   Log-Lik Full Model:           -104.673
D(36):                         209.347   LR(6):                          10.658
                                         Prob > LR:                       0.100
R2:                              0.220   Adjusted R2:                     0.089
AIC:                             5.194   AIC*n:                         223.347
BIC:                            73.943   BIC':                           11.909
BIC used by Stata:             235.675   AIC used by Stata:             223.347

(Indices saved in matrix fs_mod1)
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -107.932   Log-Lik Full Model:            -98.142
D(34):                         196.283   LR(7):                          19.580
                                         Prob > LR:                       0.007
R2:                              0.373   Adjusted R2:                     0.243
AIC:                             5.054   AIC*n:                         212.283
BIC:                            69.203   BIC':                            6.583
BIC used by Stata:             226.185   AIC used by Stata:             212.283

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance
l.5.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -105.850   Log-Lik Full Model:            -95.356
D(32):                         190.712   LR(8):                          20.987
                                         Prob > LR:                       0.007
R2:                              0.401   Adjusted R2:                     0.251
AIC:                             5.091   AIC*n:                         208.712
BIC:                            71.878   BIC':                            8.721
BIC used by Stata:             224.134   AIC used by Stata:             208.712

(Indices saved in matrix fs_mod1)
```

DISTRIBUTED LAG MODEL WITH CONTROLS ADDED

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      46
-------------+------------------------------           F(  9,    36) =    2.15
       Model |  146.689718     9  16.2988576           Prob > F      =  0.0507
    Residual |  273.418978    36   7.5949716           R-squared     =  0.3492
-------------+------------------------------           Adj R-squared =  0.1865
       Total |  420.108696    45  9.33574879           Root MSE      =  2.7559

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1696993   .0979636    -1.73   0.092    -.3683787    .0289801
Fiscal_Rel~e |
         L1. |  -.0320215   .0360374    -0.89   0.380    -.1051087    .0410657
         D1. |   .0632191   .0554051     1.14   0.261    -.0491477     .175586
log_gdp_pe~2 |
         L1. |  -1.174471   3.382418    -0.35   0.730    -8.034332     5.68539
REGION_DEM~E |
         L1. |  -.5557249   .1926903    -2.88   0.007     -.946519   -.1649307
WORLD_DEM_~E |
         L1. |   .4785767   .2290188     2.09   0.044      .014105    .9430484
Civil_War_~h |
         L1. |  (dropped)
log_gdp_pe~2 |
         D1. |   .6562389   4.638984     0.14   0.888    -8.752057    10.06454
REGION_DEM~E |
         D1. |  -.3252275   .2816008    -1.15   0.256    -.8963403    .2458854
WORLD_DEM_~E |
         D1. |   .3773304   .4495143     0.84   0.407    -.5343269    1.288988
       _cons |   5.814546      36.22     0.16   0.873    -67.64301    79.27211
------------------------------------------------------------------------------

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.637               1                   0.0565
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        46  Chi-sq(45)  P-value =  .4306
```

```
newey D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE, lag(1) force
note: L.Civil_War_Gledistsch dropped because of collinearity

Regression with Newey-West standard errors          Number of obs  =        46
maximum lag: 1                                      F(  9,    36)  =      0.44
                                                    Prob > F       =    0.9063

------------------------------------------------------------------------------
             |             Newey-West
   D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1696993   .1092657    -1.55   0.129    -.3913005    .0519018
Fiscal_Rel~e |
         L1. |  -.0320215   .0269724    -1.19   0.243    -.0867241    .0226811
         D1. |   .0632191    .059536     1.06   0.295    -.0575255    .1839637
log_gdp_pe~2 |
         L1. |  -1.174471   2.343941    -0.50   0.619    -5.928204    3.579262
REGION_DEM~E |
         L1. |  -.5557249   .3212739    -1.73   0.092    -1.207299    .0958489
WORLD_DEM_~E |
         L1. |   .4785767   .2686429     1.78   0.083    -.0662564     1.02341
log_gdp_pe~2 |
         D1. |   .6562389   2.790318     0.24   0.815    -5.002788    6.315266
REGION_DEM~E |
         D1. |  -.3252275   .2497251    -1.30   0.201    -.8316934    .1812385
WORLD_DEM_~E |
         D1. |   .3773304   .5278821     0.71   0.479    -.6932642    1.447925
       _cons |   5.814546   25.15788     0.23   0.819    -45.20801     56.8371
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1886953   .1216822     1.55   0.130    -.0580876    .4354782
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    36) =    1.23
            Prob > F =    0.3037

test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,    36) =    1.25
            Prob > F =    0.3073

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    36) =    0.68
            Prob > F =    0.5703
```

```
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -116.144   Log-Lik Full Model:           -106.266
D(35):                         212.531   LR(9):                          19.757
                                         Prob > LR:                       0.019
R2:                              0.349   Adjusted R2:                     0.186
AIC:                             5.099   AIC*n:                         234.531
BIC:                            78.529   BIC':                           14.700
BIC used by Stata:             250.818   AIC used by Stata:             232.531

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE INDONESIA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

INDONESIA UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        60

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.704            -4.128            -3.490            -3.174
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9729

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0319634   .0454301    -0.70   0.485    -.1229708    .0590441
         LD. |   .0929266   .1188955     0.78   0.438    -.1452498     .331103
      _trend |   .1326488   .0600159     2.21   0.031     .0124224    .2528752
       _cons |  -2.737635   2.633989    -1.04   0.303     -8.01415    2.538879
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        59

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.643            -4.130            -3.491            -3.175
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9623231   .1705421    -5.64   0.000    -1.304097    -.620549
         LD. |   .0159165   .1144402     0.14   0.890    -.2134268    .2452599
      _trend |   .1404696   .0652603     2.15   0.036      .009685    .2712542
       _cons |  -3.855798   2.248345    -1.71   0.092    -8.361581    .6499852
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        60

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.133            -4.128            -3.490            -3.174
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9233

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0631281   .0557086    -1.13   0.262    -.1747259    .0484697
         LD. |  -.0658589   .1363787    -0.48   0.631    -.3390582    .2073404
      _trend |     .01285   .0635826     0.20   0.841    -.1145212    .1402212
       _cons |   1.470929   1.670882     0.88   0.382    -1.876251    4.818108
------------------------------------------------------------------------------

.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        60

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.379            -3.566            -2.922            -2.596
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5923

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0554016   .0401773    -1.38   0.173    -.1358552    .0250519
         LD. |   -.072746   .1309367    -0.56   0.581    -.3349421    .1894502
       _cons |    1.70439   1.197028     1.42   0.160    -.6926174    4.101397
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        59

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.035            -4.130            -3.491            -3.175
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.206346   .1999045    -6.03   0.000    -1.606963    -.805728
         LD. |   .0908671   .1348802     0.67   0.503    -.1794389     .361173
      _trend |  -.0426526   .0484471    -0.88   0.382    -.1397428    .0544376
       _cons |   1.843604   1.721609     1.07   0.289    -1.606578    5.293785
------------------------------------------------------------------------------
```

<u>The trend was not significant, so we omit it.</u>

```
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        59

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.982            -3.567            -2.923            -2.596
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.180156   .1972814    -5.98   0.000    -1.575358   -.7849536
         LD. |   .0788771   .1339211     0.59   0.558    -.1893992    .3471534
       _cons |   .5107586   .8181026     0.62   0.535    -1.128098    2.149615
------------------------------------------------------------------------------
```

INDONESIA'S CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon 1991, Table 1. (p. 275).

Polity and Fiscal Reliance

```
newey polity_s fiscal_reliance_2, lag(1)

Regression with Newey-West standard errors          Number of obs  =        62
maximum lag: 1                                      F(  1,    60)  =      4.39
                                                    Prob > F       =    0.0404

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscal_rel~2 |  -.3155665   .1506291    -2.09   0.040    -.6168694   -.0142635
       _cons |   40.39081   4.456024     9.06   0.000     31.47744    49.30419
------------------------------------------------------------------------------

predict residual, res

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        60

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.211            -4.128            -3.490            -3.174
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9082

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0595529   .0491815    -1.21   0.231    -.1580753    .0389695
         LD. |   .1638832   .1182252     1.39   0.171    -.0729504    .4007168
      _trend |   .1324753   .0619177     2.14   0.037     .0084391    .2565114
       _cons |  -3.775872   2.215591    -1.70   0.094    -8.214235    .6624909
------------------------------------------------------------------------------
```

We compare -1.21, the coefficient on the lag of the dependent variable's level, with the test statistic.

-3.4959 is the critical value from MacKinnon 1991 for the 10 percent level.

Two non-stationary variables with a time-trend.

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

Co-integration ECM F-test strategy

No lags of differenced Polity

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      61
-------------+------------------------------           F(  3,    57) =    0.15
       Model |  39.6067872     3  13.2022624           Prob > F      =  0.9302
    Residual |  5066.13092    57  88.8794898           R-squared     =  0.0078
-------------+------------------------------           Adj R-squared = -0.0445
       Total |   5105.7377    60  85.0956284           Root MSE      =  9.4276

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0220367   .0535826    -0.41   0.682     -.129334    .0852605
fiscal_rel~2 |
         L1. |   .0242391   .0647837     0.37   0.710     -.105488    .1539663
         D1. |   .0255568   .2055799     0.12   0.902    -.3861098    .4372234
       _cons |   1.233521   2.847793     0.43   0.667    -4.469086    6.936128
------------------------------------------------------------------------------

whitetst

White's general test statistic :  9.130949  Chi-sq( 9)  P-value =  .4253


bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.021               1                   0.3122
---------------------------------------------------------------------------
                        H0: no serial correlation
```

Co-integration F-test

```
. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    57) =    0.22
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

No evidence of co-integration

Standard error of LongRun Multiplier

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.099942   4.518718    -0.24   0.809    -10.14852    7.948635
------------------------------------------------------------------------------
```

```
1 lag of differenced Polity

regress D.polity_s l.polity_s l.fiscal_reliance_2 L.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      60
-------------+------------------------------           F(  3,    56) =    0.48
       Model |  98.4333354     3  32.8111118           Prob > F      =  0.6982
    Residual |  3836.56666    56   68.510119           R-squared     =  0.0250
-------------+------------------------------           Adj R-squared = -0.0272
       Total |        3935    59  66.6949153           Root MSE      =  8.2771

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0056255   .0468429    -0.12   0.905    -.0994631    .0882121
fiscal_rel~2 |
         L1. |   .0596632   .0565068     1.06   0.296    -.0535335    .1728599
         LD. |   .0410203   .1776364     0.23   0.818    -.3148281    .3968687
       _cons |  -.6745515   2.479656    -0.27   0.787    -5.641899    4.292796
------------------------------------------------------------------------------

outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    56) =    0.65
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

No evidence of co-integration

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -10.60585   91.56207    -0.12   0.908    -194.0267     172.815
------------------------------------------------------------------------------

whitetst

White's general test statistic :  9.731306  Chi-sq( 9)  P-value =  .3727

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.052               1                   0.3050
---------------------------------------------------------------------------
                        H0: no serial correlation
```

2 lags of Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.2.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      59
-------------+------------------------------           F(  3,    55) =    0.50
       Model |   104.40258     3  34.8008599           Prob > F      =  0.6840
    Residual |  3830.34318    55  69.6426033           R-squared     =  0.0265
-------------+------------------------------           Adj R-squared = -0.0266
       Total |  3934.74576    58  67.8404442           Root MSE      =  8.3452

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0064903   .0474482    -0.14   0.892    -.1015786    .0885981
fiscal_rel~2 |
         L1. |     .06009   .0572573     1.05   0.299    -.0546563    .1748363
        L2D. |   .0633219   .1789011     0.35   0.725    -.2952039    .4218477
       _cons |  -.6859461   2.502044    -0.27   0.785    -5.700155    4.328263
------------------------------------------------------------------------------

outreg using october, nolabel 3aster bracket bdec(3) append

test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    55) =    0.64
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

No evidence of co-integration

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -9.258498   70.50455    -0.13   0.896    -150.5528    132.0358
------------------------------------------------------------------------------

whitetst

White's general test statistic :  8.650306  Chi-sq( 9)  P-value =  .4702

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.023               1                   0.3117
---------------------------------------------------------------------------
                        H0: no serial correlation
```

3 lags of Polity

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.3.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      58
-------------+------------------------------           F(  3,    54) =    0.55
       Model |  115.933622     3  38.6445406           Prob > F      =  0.6507
    Residual |  3798.29052    54  70.3387133           R-squared     =  0.0296
-------------+------------------------------           Adj R-squared = -0.0243
       Total |  3914.22414    57  68.6705989           Root MSE      =  8.3868

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0121256   .0482832    -0.25   0.803    -.1089277    .0846764
fiscal_rel~2 |
         L1. |   .0658631   .0580964     1.13   0.262    -.0506132    .1823394
        L3D. |    .027802   .1938026     0.14   0.886    -.3607488    .4163528
       _cons |  -.7388376    2.52291    -0.29   0.771    -5.796968    4.319293
------------------------------------------------------------------------------


test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    54) =    0.80
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

No evidence of co-integration

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -5.431719   23.32014    -0.23   0.817    -52.18579    41.32235
------------------------------------------------------------------------------

whitetst

White's general test statistic :  8.460287  Chi-sq( 9)  P-value =  .4885

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.093               1                   0.2959
---------------------------------------------------------------------------
                        H0: no serial correlation
```

Four lags of Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.4.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      57
-------------+------------------------------           F(  3,    53) =    0.55
       Model |  117.430586     3  39.1435288           Prob > F      =  0.6527
    Residual |   3796.6045    53  71.6340472           R-squared     =  0.0300
-------------+------------------------------           Adj R-squared = -0.0249
       Total |  3914.03509    56  69.8934837           Root MSE      =  8.4637

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.012583   .0490596    -0.26   0.799    -.1109841     .085818
fiscal_rel~2 |
         L1. |   .0692679   .0599863     1.15   0.253    -.0510494    .1895851
        L4D. |  -.0209837    .209257    -0.10   0.921    -.4407001    .3987327
       _cons |  -.8013122   2.553351    -0.31   0.755    -5.922686    4.320062
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    53) =    0.81
            Prob > F =    0.4509
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -5.504858   23.01899    -0.24   0.812     -51.6751    40.66538
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  11.99036  Chi-sq( 9)  P-value =  .2139

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.185               1                   0.2764
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

5 LAGS OF FISCAL RELIANCE

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.5.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      56
-------------+------------------------------           F(  3,    52) =    0.40
       Model |  83.5070199     3  27.8356733           Prob > F      =  0.7511
    Residual |  3587.92155    52  68.9984914           R-squared     =  0.0227
-------------+------------------------------           Adj R-squared = -0.0336
       Total |  3671.42857    55  66.7532468           Root MSE      =  8.3065

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   .0032423   .0490769     0.07   0.948    -.0952377    .1017222
fiscal_rel~2 |
         L1. |   .0616698   .0591428     1.04   0.302    -.0570089    .1803485
        L5D. |  -.1037685   .2104644    -0.49   0.624    -.5260961    .3185591
       _cons |  -.8043819   2.513654    -0.32   0.750    -5.848398    4.239634
------------------------------------------------------------------------------

outreg using october, nolabel 3aster bracket bdec(3) append

test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    52) =    0.56
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   19.02044   284.5151     0.07   0.947    -551.9008    589.9417
------------------------------------------------------------------------------

whitetst

White's general test statistic :  7.898291  Chi-sq( 9)  P-value =  .5444

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.920               1                   0.3375
---------------------------------------------------------------------------
                        H0: no serial correlation
```

CHOOSING A DISTRIBUTED LAG MODEL WITH THE BIC STATISTIC

```
quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -221.586     Log-Lik Full Model:         -221.349
D(57):                       442.697     LR(3):                         0.475
                                         Prob > LR:                     0.924
R2:                            0.008     Adjusted R2:                  -0.044
AIC:                           7.388     AIC*n:                       450.697
BIC:                         208.378     BIC':                         11.858

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -210.636     Log-Lik Full Model:         -209.802
D(55):                       419.603     LR(4):                         1.669
                                         Prob > LR:                     0.796
R2:                            0.027     Adjusted R2:                  -0.043
AIC:                           7.160     AIC*n:                       429.603
BIC:                         194.414     BIC':                         14.709

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance
fiscal_reliance ambiguous abbreviation
r(111);

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -207.619     Log-Lik Full Model:         -206.703
D(53):                       413.406     LR(5):                         1.833
                                         Prob > LR:                     0.872
R2:                            0.031     Adjusted R2:                  -0.061
AIC:                           7.210     AIC*n:                       425.406
BIC:                         197.296     BIC':                         18.555

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.
> d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -204.444     Log-Lik Full Model:         -203.393
D(51):                       406.786     LR(6):                         2.103
                                         Prob > LR:                     0.910
R2:                            0.036     Adjusted R2:                  -0.078
AIC:                           7.255     AIC*n:                       420.786
BIC:                         199.704     BIC':                         22.260

(Indices saved in matrix fs_mod1)
```

THE BIC CHOOSES 1 LAG OF FISCAL RELIANCE

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      60
-------------+------------------------------           F(  4,    55) =    0.39
       Model |  107.935168     4  26.983792            Prob > F      =  0.8165
    Residual |  3827.06483    55  69.5829969           R-squared     =  0.0274
-------------+------------------------------           Adj R-squared = -0.0433
       Total |        3935    59  66.6949153           Root MSE      =  8.3416

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0029287    .047769    -0.06   0.951    -.0986599    .0928026
fiscal_rel~2 |
         L1. |   .0642916   .0583086     1.10   0.275    -.0525615    .1811447
         D1. |   .0675443   .1827833     0.37   0.713    -.2987616    .4338502
         LD. |   .0466606   .1796714     0.26   0.796    -.3134089    .4067301
       _cons |    -.89776    2.57096    -0.35   0.728    -6.050079    4.254559
------------------------------------------------------------------------------

test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    55) =    0.69
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -21.95238   364.4452    -0.06   0.952    -752.3168     708.412
------------------------------------------------------------------------------
```

F-test on Fiscal Reliance and its lag:

```
test d.fiscal_reliance_2 L.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0

       F(  2,    55) =    0.09
            Prob > F =    0.9099

whitetst

White's general test statistic :  14.12866  Chi-sq(14)  P-value =  .4402

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.902               1                   0.3423
---------------------------------------------------------------------------
                        H0: no serial correlation
```

NO MISSING VALUES FOR GDP PER CAPITA, SO NO NEED TO TRUNCATE THE DATASET AND RUN THE BIVARIATE SPECIFICATION AGAIN. WE CAN SIMPLY MOVE TO THE CONTROL VARIABLE SPECIFICATION.

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.civil_war_gledistsch d.fiscal_reliance_2
L.d.fiscal_reliance_2 d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      60
-------------+------------------------------           F( 11,    48) =    1.15
       Model |  820.874087    11   74.624917           Prob > F      =  0.3458
    Residual |  3114.12591    48  64.8776232           R-squared     =  0.2086
-------------+------------------------------           Adj R-squared =  0.0272
       Total |        3935    59  66.6949153           Root MSE      =  8.0547

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1435656   .0878128    -1.63   0.109    -.3201251    .0329939
fiscal_rel~2 |
         L1. |   .1201434   .1736167     0.69   0.492    -.2289363    .4692231
log_gdp_pe~2 |
         L1. |  -13.84323   12.18334    -1.14   0.261    -38.33947    10.65301
REGION_DEM~E |
         L1. |  -.1558268   .2356952    -0.66   0.512    -.6297237    .3180701
WORLD_DEM_~E |
         L1. |   1.659448   .9281777     1.79   0.080    -.2067782    3.525675
civil_war_~h |
         L1. |  -3.793778   4.888753    -0.78   0.442    -13.62327    6.035719
fiscal_rel~2 |
         D1. |   .1754937   .2020958     0.87   0.390    -.2308472    .5818345
         LD. |   .1249735    .182091     0.69   0.496    -.2411449     .491092
log_gdp_pe~2 |
         D1. |  -30.02096   25.43856    -1.18   0.244    -81.16862    21.12669
REGION_DEM~E |
         D1. |   .0660224   .2655678     0.25   0.805    -.4679374    .5999823
WORLD_DEM_~E |
         D1. |   .1264486   1.103182     0.11   0.909    -2.091647    2.344544
       _cons |   57.79707   63.77745     0.91   0.369    -70.43608    186.0302
------------------------------------------------------------------------------

whitetst

White's general test statistic :        60  Chi-sq(59)  P-value =  .4392

.
bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.141               1                   0.7075
---------------------------------------------------------------------------
                        H0: no serial correlation

.
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8368537   1.008947    -0.83   0.411    -2.865478     1.19177
------------------------------------------------------------------------------

.
```

```
test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    48) =    1.38
            Prob > F =    0.2615

.
test d.fiscal_reliance_2 L.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0

       F(  2,    48) =    0.60
            Prob > F =    0.5544

.
test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.civil_war_gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.civil_war_gledistsch = 0

       F(  4,    48) =    2.32
            Prob > F =    0.0704

.

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    48) =    0.54
            Prob > F =    0.6578

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -210.636     Log-Lik Full Model:         -203.617
D(48):                       407.234     LR(11):                       14.038
                                         Prob > LR:                     0.231
R2:                            0.209     Adjusted R2:                   0.027
AIC:                           7.187     AIC*n:                       431.234
BIC:                         210.706     BIC':                         31.000

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE IRAN TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

IRAN UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       205

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.444            -4.005            -3.436            -3.136
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0458

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1088205   .0315992    -3.44   0.001     -.171129    -.046512
         LD. |   .0848996   .0703337     1.21   0.229     -.053787    .2235861
      _trend |   .0182455   .0102911     1.77   0.078    -.0020468    .0385379
       _cons |  -.4334029   1.054527    -0.41   0.682    -2.512758    1.645952
------------------------------------------------------------------------------

dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       205

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.938            -3.475            -2.883            -2.573
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0411

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0788021   .0268215    -2.94   0.004     -.131688   -.0259161
         LD. |   .0691874   .0701423     0.99   0.325    -.0691177    .2074924
       _cons |   1.086408   .6174124     1.76   0.080     -.130992    2.303808
------------------------------------------------------------------------------

.
.
.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       204

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.881            -4.005            -3.436            -3.136
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9730784   .0984825    -9.88   0.000    -1.167276   -.7788811
         LD. |   .0032796   .0707101     0.05   0.963    -.1361534    .1427126
      _trend |  -.0007709   .0090302    -0.09   0.932    -.0185775    .0170357
       _cons |   .1751909   1.075422     0.16   0.871     -1.94543    2.295812
------------------------------------------------------------------------------

dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       204

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.905            -3.475            -2.883            -2.573
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9730097   .0982358    -9.90   0.000    -1.166715   -.7793049
         LD. |   .0032459   .0705342     0.05   0.963     -.135836    .1423278
       _cons |   .0953931   .5305337     0.18   0.857    -.9507326    1.141519
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       162

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.619            -4.019            -3.442            -3.142
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2710

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0753901   .0287811    -2.62   0.010    -.1322355   -.0185447
         LD. |   .0093759    .080569     0.12   0.908    -.1497552     .168507
      _trend |   .0270539   .0118197     2.29   0.023     .0037089     .050399
       _cons |  -1.316811   .8801452    -1.50   0.137    -3.055179    .4215566
------------------------------------------------------------------------------
```

```
.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       162

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.265            -3.489            -2.886            -2.576
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6449

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0198038   .0156504    -1.27   0.208    -.0507134    .0111057
         LD. |  -.0111584   .0811282    -0.14   0.891    -.1713863    .1490696
       _cons |   .3992149   .4671612     0.85   0.394    -.5234268    1.321857
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       158

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -11.417            -4.021            -3.442            -3.142
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.177214   .1031086   -11.42   0.000    -1.380904   -.9735242
         LD. |   .1724624   .0713221     2.42   0.017     .0315664    .3133584
      _trend |  -.0016728   .0057788    -0.29   0.773    -.0130888    .0097432
       _cons |   .0935041   .6456866     0.14   0.885    -1.182042     1.36905
------------------------------------------------------------------------------

.
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       158

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -11.511            -3.491            -2.886            -2.576
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.179599   .1024747   -11.51   0.000    -1.382026   -.9771717
         LD. |   .1737839   .0709652     2.45   0.015     .0336003    .3139676
       _cons |  -.0613447   .3605199    -0.17   0.865    -.7735111    .6508217
------------------------------------------------------------------------------
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon (1991, Table 1).

Polity and Fiscal Reliance

```
newey polity_s fiscal_reliance_2, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       173
maximum lag: 1                                      F(  1,   171)  =      9.13
                                                    Prob > F       =    0.0029

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscal_rel~2 |   .2565726     .08493     3.02   0.003     .0889263    .4242189
       _cons |   5.756013   1.824586     3.15   0.002       2.1544    9.357626
------------------------------------------------------------------------------


. dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       162

                              ---------- Interpolated Dickey-Fuller ---------
               Test         1% Critical       5% Critical      10% Critical
            Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.649            -4.019            -3.442            -3.142
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2578

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.1031089   .0389219    -2.65   0.009    -.1799832   -.0262346
         LD. |   .0408406   .0811373     0.50   0.615     -.119413    .2010941
      _trend |   .0098698   .0099887     0.99   0.325    -.0098587    .0295983
       _cons |  -.6158429   1.129584    -0.55   0.586    -2.846876     1.61519
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       162

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.475            -3.489            -2.886            -2.576
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1216

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.092817   .0374995    -2.48   0.014    -.1668784   -.0187556
         LD. |  .0359806    .080982     0.44   0.657    -.1239586    .1959198
       _cons |   .325979   .6061189     0.54   0.591    -.8711035    1.523061
```

-2.48 test statistic versus -3.0462 ten percent level with no trend for a pair of integrated series.

.

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

ECM BASED F-TEST FOR CO-INTEGRATION

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     167
-------------+------------------------------           F(  3,   163) =    2.24
       Model |  368.857737     3  122.952579           Prob > F      =  0.0857
    Residual |  8951.80095   163  54.9190242           R-squared     =  0.0396
-------------+------------------------------           Adj R-squared =  0.0219
       Total |  9320.65868   166  56.1485463           Root MSE      =  7.4107

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0844135   .0339953    -2.48   0.014    -.1515416   -.0172855
fiscal_rel~2 |
         L1. |   .0272502   .0241066     1.13   0.260    -.0203512    .0748517
         D1. |  -.0703284   .1121197    -0.63   0.531    -.2917228     .151066
       _cons |   .7786022   .6875068     1.13   0.259    -.5789656     2.13617
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) replace

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.322818    .265673    -1.22   0.226    -.8474224    .2017863
------------------------------------------------------------------------------

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   163) =    3.11
            Prob > F =    0.0475

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.001               1                   0.9760
---------------------------------------------------------------------------
                        H0: no serial correlation


. whitetst

White's general test statistic :  12.95606  Chi-sq( 9)  P-value =  .1646
```

```
1 lag of D.fiscal reliance

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     166
-------------+------------------------------           F(  3,   162) =    2.67
       Model |  494.306422     3  164.768807           Prob > F      =  0.0497
    Residual |  10014.2779   162  61.8165303           R-squared     =  0.0470
-------------+------------------------------           Adj R-squared =  0.0294
       Total |  10508.5843   165  63.6883899           Root MSE      =  7.8623

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0843874    .035596    -2.37   0.019    -.1546795   -.0140954
fiscal_rel~2 |
         L1. |   .0289717   .0257536     1.12   0.262    -.0218844    .0798278
         LD. |  -.2093117    .121345    -1.72   0.086    -.4489336    .0303102
       _cons |   1.035198   .7321171     1.41   0.159    -.4105248    2.480922
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3433179   .2845102    -1.21   0.229    -.9051448    .2185089
------------------------------------------------------------------------------

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   162) =    2.84
            Prob > F =    0.0612

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.005               1                   0.9434
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  17.78417  Chi-sq( 9)  P-value =  .0378


HETEROSKEDASTICITY UNCOVERED.  RERUN WITH WHITE STANDARD ERRORS.
```

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.d.fiscal_reliance_2, r

Linear regression                                      Number of obs =     166
                                                       F(  3,   162) =    1.17
                                                       Prob > F      =  0.3239
                                                       R-squared     =  0.0470
                                                       Root MSE      =  7.8623

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0843874   .0485746    -1.74   0.084    -.1803084    .0115336
fiscal_rel~2 |
         L1. |   .0289717     .04288     0.68   0.500     -.055704    .1136475
         LD. |  -.2093117   .1482038    -1.41   0.160    -.5019721    .0833488
       _cons |   1.035198   .5649266     1.83   0.069    -.0803711    2.150768
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3433179   .4793197    -0.72   0.475    -1.289838    .6032023
------------------------------------------------------------------------------

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   162) =    1.51
            Prob > F =    0.2232
```

```
2 lags

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.2.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     161
-------------+------------------------------           F(  3,   157) =    1.73
       Model |   335.33649     3   111.77883           Prob > F      =  0.1640
    Residual |  10171.1852   157  64.7846194           R-squared     =  0.0319
-------------+------------------------------           Adj R-squared =  0.0134
       Total |  10506.5217   160  65.6657609           Root MSE      =  8.0489

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0855155   .0376153    -2.27   0.024    -.1598128   -.0112183
fiscal_rel~2 |
         L1. |   .0264513   .0269684     0.98   0.328    -.0268164    .0797191
        L2D. |  -.0594368   .1294512    -0.46   0.647    -.3151275    .1962539
       _cons |   1.062622   .7588175     1.40   0.163    -.4361865     2.56143
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  11.70882  Chi-sq( 9)  P-value =  .2302

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.002               1                   0.9620
---------------------------------------------------------------------------
                        H0: no serial correlation

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3093158   .2889141    -1.07   0.286    -.8799758    .2613442
------------------------------------------------------------------------------

test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   157) =    2.59
            Prob > F =    0.0785
```

3 lags

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.3.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     158
-------------+------------------------------           F(  3,   154) =    1.65
       Model |  326.873155     3  108.957718           Prob > F      =  0.1805
    Residual |  10178.3484   154  66.0931712           R-squared     =  0.0311
-------------+------------------------------           Adj R-squared =  0.0122
       Total |  10505.2215   157   66.912239           Root MSE      =  8.1298

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0809983   .0375768    -2.16   0.033    -.1552309   -.0067657
fiscal_rel~2 |
         L1. |   .0240212   .0273889     0.88   0.382    -.0300852    .0781276
        L3D. |   .0235056   .1300046     0.18   0.857    -.2333168    .2803281
       _cons |   1.087428   .7735952     1.41   0.162    -.4408003    2.615656
------------------------------------------------------------------------------

whitetst

White's general test statistic :  35.48787  Chi-sq( 9)  P-value =  4.9e-05

HETEROSKEDASTICITY DETECTED. THEREFORE, RERUN WITH STANDARD ERRORS.

bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.001               1                   0.9713
---------------------------------------------------------------------------
                        H0: no serial correlation

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.3.d.fiscal_reliance_2, r

Linear regression                                      Number of obs =     158
                                                       F(  3,   154) =    1.34
                                                       Prob > F      =  0.2637
                                                       R-squared     =  0.0311
                                                       Root MSE      =  8.1298

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0809983   .0558648    -1.45   0.149    -.1913585    .0293619
fiscal_rel~2 |
         L1. |   .0240212   .0431632     0.56   0.579    -.0612471    .1092895
        L3D. |   .0235056    .273815     0.09   0.932    -.5174126    .5644239
       _cons |   1.087428   .6030575     1.80   0.073    -.1039051    2.278761
------------------------------------------------------------------------------

nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2965641   .4930308    -0.60   0.548    -1.270541    .6774123
------------------------------------------------------------------------------
```

```
test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   154) =    1.05
            Prob > F =    0.3520

.


.
```

4 lags

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.4.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     155
-------------+------------------------------           F(  3,   151) =    2.51
       Model |  499.741885     3  166.580628           Prob > F      =  0.0606
    Residual |  10004.1291   151  66.2525105           R-squared     =  0.0476
-------------+------------------------------           Adj R-squared =  0.0287
       Total |   10503.871   154  68.2069543           Root MSE      =  8.1396

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0734976   .0372756    -1.97   0.050    -.1471467    .0001515
fiscal_rel~2 |
         L1. |   .0182113   .0278048     0.65   0.513    -.0367253     .073148
        L4D. |   .2383183   .1485281     1.60   0.111    -.0551434      .53178
       _cons |   1.141798    .781601     1.46   0.146    -.4024889    2.686084
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  15.71008  Chi-sq( 9)  P-value =  .0732

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.4.d.fiscal_reliance_2, r

Linear regression                                      Number of obs =     155
                                                       F(  3,   151) =    1.10
                                                       Prob > F      =  0.3492
                                                       R-squared     =  0.0476
                                                       Root MSE      =  8.1396

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0734976   .0465177    -1.58   0.116    -.1654073    .0184121
fiscal_rel~2 |
         L1. |   .0182113   .0362862     0.50   0.616    -.0534828    .0899055
        L4D. |   .2383183   .2743046     0.87   0.386    -.3036526    .7802891
       _cons |   1.141798   .6014596     1.90   0.060    -.0465657    2.330161
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2477815   .5005304    -0.50   0.621    -1.236729    .7411659
------------------------------------------------------------------------------

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   151) =    1.30
            Prob > F =    0.2755
```

```
bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.073               1                   0.7869
---------------------------------------------------------------------------
                        H0: no serial correlation
```

5 lags

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.5.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =     153
-------------+------------------------------           F(  3,   149) =    2.65
       Model |   471.37793     3  157.125977           Prob > F      =  0.0512
    Residual |  8846.59593   149   59.373127           R-squared     =  0.0506
-------------+------------------------------           Adj R-squared =  0.0315
       Total |  9317.97386   152  61.3024596           Root MSE      =  7.7054

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0838119   .0346246    -2.42   0.017    -.1522306   -.0153933
fiscal_rel~2 |
         L1. |   .0297206   .0260982     1.14   0.257    -.0218498    .0812909
        L5D. |   .1868117   .1339663     1.39   0.165    -.0779074    .4515309
       _cons |   .8827315   .7471888     1.18   0.239    -.5937234    2.359186
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  21.60565  Chi-sq( 9)  P-value =  .0102

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.117               1                   0.7325
---------------------------------------------------------------------------
                        H0: no serial correlation

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.5.d.fiscal_reliance_2, r

Linear regression                                      Number of obs =     153
                                                       F(  3,   149) =    1.44
                                                       Prob > F      =  0.2349
                                                       R-squared     =  0.0506
                                                       Root MSE      =  7.7054

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0838119   .0446141    -1.88   0.062      -.17197    .0043461
fiscal_rel~2 |
         L1. |   .0297206   .0444985     0.67   0.505    -.0582091    .1176502
        L5D. |   .1868117   .2720739     0.69   0.493    -.3508098    .7244332
       _cons |   .8827315   .5353681     1.65   0.101    -.1751628    1.940626
------------------------------------------------------------------------------

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3546101    .505325    -0.70   0.484    -1.353139    .6439187
------------------------------------------------------------------------------
```

```
. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,   149) =    1.77
            Prob > F =    0.1741

.
```

LAGS CHOSEN BY THE BIC STATISTIC

```
. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -572.799     Log-Lik Full Model:         -569.428
D(163):                     1138.855     LR(3):                         6.743
                                         Prob > LR:                     0.081
R2:                            0.040     Adjusted R2:                   0.022
AIC:                           6.867     AIC*n:                      1146.855
BIC:                         304.622     BIC':                          8.611

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -558.104     Log-Lik Full Model:         -552.577
D(157):                     1105.154     LR(4):                        11.054
                                         Prob > LR:                     0.026
R2:                            0.066     Adjusted R2:                   0.042
AIC:                           6.884     AIC*n:                      1115.154
BIC:                         306.401     BIC':                          9.296

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -546.292     Log-Lik Full Model:         -540.540
D(152):                     1081.080     LR(5):                        11.504
                                         Prob > LR:                     0.042
R2:                            0.070     Adjusted R2:                   0.040
AIC:                           6.918     AIC*n:                      1093.080
BIC:                         311.566     BIC':                         13.809

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -534.430     Log-Lik Full Model:         -528.521
D(147):                     1057.042     LR(6):                        11.818
                                         Prob > LR:                     0.066
R2:                            0.074     Adjusted R2:                   0.036
AIC:                           6.955     AIC*n:                      1071.042
BIC:                         316.610     BIC':                         18.404

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2 L.4.d.fiscal_reliance_2
```

```
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -522.516     Log-Lik Full Model:         -514.744
D(142):                     1029.487     LR(7):                        15.544
                                         Prob > LR:                     0.030
R2:                            0.098     Adjusted R2:                   0.054
AIC:                           6.970     AIC*n:                      1045.487
BIC:                         317.977     BIC':                         19.531

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_reliance_2
L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -516.538     Log-Lik Full Model:         -508.561
D(139):                     1017.122     LR(8):                        15.955
                                         Prob > LR:                     0.043
R2:                            0.102     Adjusted R2:                   0.051
AIC:                           6.994     AIC*n:                      1035.122
BIC:                         322.509     BIC':                         24.023

(Indices saved in matrix fs_mod1)

.
```

NO LAGS CHOSEN. SIMPLY REPEAT THE SPECIFICATION WITH NO LAGS.

LAGS CHOSEN WITH THE DATA TRUNCATED TO 1950, BECAUSE THE COVERAGE FOR ONE OF THE CONTROL VARIABLES, GDP PER CAPITA, ONLY BEGINS IN 1950.

```
quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2 if
```
gdp_per_cap_haber_men_2 != .

```
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -180.319     Log-Lik Full Model:         -177.964
D(42):                       355.927     LR(3):                         4.711
                                         Prob > LR:                     0.194
R2:                            0.097     Adjusted R2:                   0.033
AIC:                           7.911     AIC*n:                       363.927
BIC:                         195.124     BIC':                          6.775

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 if gdp_per_cap_haber_men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -173.456     Log-Lik Full Model:         -170.018
D(39):                       340.036     LR(4):                         6.876
                                         Prob > LR:                     0.143
R2:                            0.145     Adjusted R2:                   0.057
AIC:                           7.955     AIC*n:                       350.036
BIC:                         192.452     BIC':                          8.260

(Indices saved in matrix fs_mod1)


quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 if gdp_per_cap_
haber_men_2 != .

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -166.547     Log-Lik Full Model:         -162.833
D(36):                       325.666     LR(5):                         7.428
                                         Prob > LR:                     0.191
R2:                            0.162     Adjusted R2:                   0.046
AIC:                           8.040     AIC*n:                       337.666
BIC:                         191.110     BIC':                         11.260

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.(1/3).d.fiscal_reliance_2 if gdp_per_cap_haber_men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -159.591     Log-Lik Full Model:         -155.667
D(33):                       311.333     LR(6):                         7.849
                                         Prob > LR:                     0.249
R2:                            0.178     Adjusted R2:                   0.029
AIC:                           8.133     AIC*n:                       325.333
BIC:                         189.600     BIC':                         14.285

(Indices saved in matrix fs_mod1)
```

```
. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.(1/4).d.fiscal_reliance_2 if gdp_per_cap_haber_men_2 != .

fitstat, saving(mod1)
```

Measures of Fit for regress of D.polity_s

```
Log-Lik Intercept Only:     -152.584     Log-Lik Full Model:         -148.510
D(30):                       297.019     LR(7):                         8.150
                                         Prob > LR:                     0.320
R2:                            0.193     Adjusted R2:                   0.005
AIC:                           8.237     AIC*n:                       313.019
BIC:                         187.892     BIC':                         17.314
```

```
(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.(1/5).d.fiscal_reliance_2 if gdp_per_cap_haber_men_2 != .

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -149.062     Log-Lik Full Model:         -144.992
D(28):                       289.983     LR(8):                         8.140
                                         Prob > LR:                     0.420
R2:                            0.197     Adjusted R2:                  -0.032
AIC:                           8.324     AIC*n:                       307.983
BIC:                         188.877     BIC':                         20.747

(Indices saved in matrix fs_mod1)
```

A model with 4 lags of Fiscal Reliance is chosen by the BIC statistic

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.(1/4).d.fiscal_reliance_2 if gdp_per_cap_haber_men_2 != .

      Source |       SS       df       MS              Number of obs =      38
-------------+------------------------------           F(  7,    30) =    1.03
       Model |  1320.1856     7  188.597942           Prob > F      =  0.4343
    Residual |  5519.28809    30   183.97627           R-squared     =  0.1930
-------------+------------------------------           Adj R-squared =  0.0047
       Total |  6839.47368    37   184.85064           Root MSE      =  13.564

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2075829   .1054595    -1.97   0.058      -.42296    .0077942
fiscal_rel~2 |
         L1. |   .1756572   .2615364     0.67   0.507    -.3584714    .7097859
         D1. |   .0240341   .2895971     0.08   0.934    -.5674022    .6154704
         LD. |  -.4496758   .2865522    -1.57   0.127    -1.034893    .1355418
        L2D. |  -.1589323   .2940189    -0.54   0.593    -.7593991    .4415345
        L3D. |  -.1284448   .2933272    -0.44   0.665    -.7274989    .4706092
        L4D. |   .1764027   .2993121     0.59   0.560    -.4348742    .7876796
       _cons |  -4.590117   15.19735    -0.30   0.765    -35.62725    26.44701
------------------------------------------------------------------------------


. whitetst

White's general test statistic :  36.97253  Chi-sq(35)  P-value =  .3779

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.007               1                   0.9344
---------------------------------------------------------------------------
                        H0: no serial correlation


nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8462029   1.279646    -0.66   0.513    -3.459589    1.767184


test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    30) =    2.03
            Prob > F =    0.1490

test d.fiscal_reliance_2 L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2
L.3.d.fiscal_reliance_2 L.4.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0
 ( 3)  L2D.fiscal_reliance_2 = 0
 ( 4)  L3D.fiscal_reliance_2 = 0
 ( 5)  L4D.fiscal_reliance_2 = 0

       F(  5,    30) =    0.64
```

```
            Prob > F =    0.6674

MODEL WITH DISTRIBUTED LAGS AND THE CONTROL VARIABLES

regress D.polity_s l.polity_s l.fiscal_reliance_2 l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.civil_war_gledistsch d.fiscal_reliance_2
L.(1/4).d.fiscal_reliance_2 d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE if gdp_per_cap_haber_men_2 != .

      Source |       SS       df       MS              Number of obs =      38
-------------+------------------------------           F( 14,    23) =    1.24
       Model |  2942.84311    14  210.203079           Prob > F      =  0.3133
    Residual |  3896.63058    23  169.418721           R-squared     =  0.4303
-------------+------------------------------           Adj R-squared =  0.0835
       Total |  6839.47368    37   184.85064           Root MSE      =  13.016

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.4504125   .1965438    -2.29   0.031    -.8569942   -.0438307
fiscal_rel~2 |
         L1. |  -.0525731   .4583211    -0.11   0.910    -1.000683    .8955363
log_gdp_pe~2 |
         L1. |   5.709728   19.02246     0.30   0.767    -33.64123    45.06069
REGION_DEM~E |
         L1. |   -.710663   1.751483    -0.41   0.689    -4.333882    2.912556
WORLD_DEM_~E |
         L1. |   1.144226   .6578686     1.74   0.095    -.2166785    2.505131
civil_war_~h |
         L1. |   10.97685   10.03655     1.09   0.285    -9.785339    31.73903
fiscal_rel~2 |
         D1. |  -.0539629   .3279331    -0.16   0.871    -.7323441    .6244183
         LD. |  -.1328597    .402191    -0.33   0.744    -.9648552    .6991357
        L2D. |  -.1101167   .3774915    -0.29   0.773    -.8910173     .670784
        L3D. |  -.1717928   .3639203    -0.47   0.641    -.9246194    .5810338
        L4D. |   .1871825    .331297     0.56   0.578    -.4981576    .8725225
log_gdp_pe~2 |
         D1. |  -48.56948   24.09462    -2.02   0.056      -98.413    1.274044
REGION_DEM~E |
         D1. |  -.2657471   1.559648    -0.17   0.866    -3.492124     2.96063
WORLD_DEM_~E |
         D1. |  -1.155668   2.174276    -0.53   0.600    -5.653502    3.342166
       _cons |   -68.7266   151.3153    -0.45   0.654    -381.7462     244.293
------------------------------------------------------------------------------

. whitetst

White's general test statistic :        38  Chi-sq(37)  P-value =  .4236

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          2.243               1                   0.1342
---------------------------------------------------------------------------
                        H0: no serial correlation

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1167222   1.031271     0.11   0.911    -2.016625    2.250069
------------------------------------------------------------------------------
```

```
test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    23) =    2.87
            Prob > F =    0.0771


fitstat, saving(mod1)


test d.fiscal_reliance_2 L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2
L.3.d.fiscal_reliance_2 L.4.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0
 ( 3)  L2D.fiscal_reliance_2 = 0
 ( 4)  L3D.fiscal_reliance_2 = 0
 ( 5)  L4D.fiscal_reliance_2 = 0

       F(  5,    23) =    0.30
            Prob > F =    0.9106

test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.civil_war_gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.civil_war_gledistsch = 0

       F(  4,    23) =    1.18
            Prob > F =    0.3472

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    23) =    1.62
            Prob > F =    0.2129


Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -152.584     Log-Lik Full Model:        -141.895
D(23):                       283.790     LR(14):                      21.379
                                         Prob > LR:                    0.092
R2:                            0.430     Adjusted R2:                  0.083
AIC:                           8.258     AIC*n:                      313.790
BIC:                         200.126     BIC':                        29.547

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE KUWAIT TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

KUWAIT'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        39

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.043            -4.251            -3.544            -3.206
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5776

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2391298   .1170271    -2.04   0.049    -.4767075   -.0015521
         LD. |   .1222694   .1536257     0.80   0.431    -.1896074    .4341463
      _trend |   .0767103    .049788     1.54   0.132    -.0243647    .1777853
       _cons |   .1960988   1.031327     0.19   0.850    -1.897606    2.289803
------------------------------------------------------------------------------
```

```
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        39

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.351            -3.655            -2.961            -2.613
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6054

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1239839   .0917587    -1.35   0.185    -.3100793    .0621114
         LD. |    .075768   .1534793     0.49   0.625    -.2355024    .3870383
       _cons |   .8562661   .9558399     0.90   0.376    -1.082267    2.794799
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        37

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.454            -4.270            -3.552            -3.211
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0018

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.001414   .2248363    -4.45   0.000    -1.458846   -.5439809
         LD. |  -.0015553     .14833    -0.01   0.992     -.303335    .3002244
      _trend |  -.0049993   .0420886    -0.12   0.906    -.0906291    .0806306
       _cons |   -.028926   1.040681    -0.03   0.978    -2.146207    2.088355
------------------------------------------------------------------------------

.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        37

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.551            -3.668            -2.966            -2.616
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0002

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.003891   .2205972    -4.55   0.000    -1.452198   -.5555836
         LD. |  -1.11e-16    .145593    -0.00   1.000    -.2958806    .2958806
       _cons |  -.1361868   .5097171    -0.27   0.791    -1.172057    .8996831
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.441            -4.224            -3.532            -3.199
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3581

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.4800668   .1966764    -2.44   0.019    -.8782174   -.0819162
         LD. |  -.2514521   .1666346    -1.51   0.140    -.5887863     .085882
      _trend |  -.0533836   .0571198    -0.93   0.356    -.1690165    .0622493
       _cons |   44.74171   18.58746     2.41   0.021      7.11336    82.37007
------------------------------------------------------------------------------

dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.325            -3.634            -2.952            -2.610
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1640

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.3755325   .1615122    -2.33   0.025    -.7022218   -.0488432
         LD. |  -.3114878   .1535055    -2.03   0.049     -.621982   -.0009936
       _cons |   34.07065   14.64334     2.33   0.025     4.451706    63.68959
------------------------------------------------------------------------------


.
```

Fiscal_Reliance_Resource_Revs_FD

```
. dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.258            -4.233            -3.536            -3.202
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.972424   .2717731    -7.26   0.000    -2.523088   -1.421759
         LD. |    .310529   .1570144     1.98   0.055    -.0076124    .6286704
      _trend |   .0320593   .0505975     0.63   0.530     -.070461    .1345796
       _cons |  -.6465335   1.262749    -0.51   0.612    -3.205106    1.912039
------------------------------------------------------------------------------

. dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.288            -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.959328   .2688434    -7.29   0.000    -2.503573   -1.415083
        LD2. |   .3051014   .1555409     1.96   0.057    -.0097748    .6199776
       _cons |   .0585605   .5920887     0.10   0.922     -1.14006    1.257181
------------------------------------------------------------------------------

.
```

KUWAIT'S CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        43
maximum lag: 1                                      F(  1,    41)  =      0.92
                                                    Prob > F       =    0.3429

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |  -.2493928   .2599154    -0.96   0.343    -.7743026     .275517
       _cons |   31.46553   23.73718     1.33   0.192    -16.47268    79.40374
------------------------------------------------------------------------------
predict residual, res
dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        39

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.913            -4.251            -3.544            -3.206
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6480

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.2418311   .1264287    -1.91   0.064     -.498495    .0148328
         LD. |     .03946   .1494319     0.26   0.793    -.2639029     .342823
      _trend |   .0750294   .0507883     1.48   0.149    -.0280763    .1781351
       _cons |  -1.845794   1.221831    -1.51   0.140    -4.326243    .6346554
------------------------------------------------------------------------------
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        39

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.276            -3.655            -2.961            -2.613
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6402

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.1335449   .1046892    -1.28   0.210    -.3458644    .0787746
         LD. |   .0007539   .1495136     0.01   0.996    -.3024736    .3039814
       _cons |  -.2083395   .5224709    -0.40   0.692     -1.26796    .8512806
```

The test statistic is -3.0462. We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are NOT co-integrated series.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  3,    37) =    2.86
       Model |  84.8007618     3  28.2669206           Prob > F      =  0.0497
    Residual |  365.199238    37  9.87024968           R-squared     =  0.1884
-------------+------------------------------           Adj R-squared =  0.1226
       Total |         450    40       11.25           Root MSE      =  3.1417

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1663033   .0921346    -1.81   0.079    -.3529859    .0203792
Fiscal_Rel~e |
         L1. |  -.2082964   .1532654    -1.36   0.182    -.5188415    .1022487
         D1. |   .1234893   .1631422     0.76   0.454    -.2070683    .4540469
       _cons |   20.31754   14.20755     1.43   0.161    -8.469681    49.10476
------------------------------------------------------------------------------

. . whitetst

White's general test statistic :  5.171541  Chi-sq( 9)  P-value =  .8191


. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.680               1                   0.4094
---------------------------------------------------------------------------
                        H0: no serial correlation


nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.252509   .9767164     1.28   0.208    -.7265065    3.231524
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    37) =    2.00
            Prob > F =    0.1492
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      40
-------------+------------------------------           F(  3,    36) =    2.59
       Model |  79.8258487     3  26.6086162           Prob > F      =  0.0680
    Residual |  370.174151    36  10.2826153           R-squared     =  0.1774
-------------+------------------------------           Adj R-squared =  0.1088
       Total |         450    39  11.5384615           Root MSE      =  3.2067

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1736904   .1011364    -1.72   0.095    -.3788046    .0314238
Fiscal_Rel~e |
         L1. |  -.2633426   .1550018    -1.70   0.098    -.5777009    .0510156
         LD. |   -.029751   .1501844    -0.20   0.844    -.3343391     .274837
       _cons |    25.4085   14.45149     1.76   0.087     -3.90049    54.71748
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.101               1                   0.2941
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  7.820109  Chi-sq( 9)  P-value =  .5524

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.516162   .9652998     1.57   0.125    -.4415572     3.47388
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    36) =    2.07
            Prob > F =    0.1408

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      39
-------------+------------------------------           F(  3,    35) =    2.50
       Model |  74.8129051     3   24.937635           Prob > F      =  0.0757
    Residual |  349.546069    35  9.98703055           R-squared     =  0.1763
-------------+------------------------------           Adj R-squared =  0.1057
       Total |  424.358974    38  11.1673414           Root MSE      =  3.1602

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1768968   .0906739    -1.95   0.059    -.3609746     .007181
Fiscal_Rel~e |
         L1. |  -.2678428   .1203882    -2.22   0.033    -.5122438   -.0234418
        L2D. |   .0617001   .1142712     0.54   0.593    -.1702828    .2936831
       _cons |   25.95894   11.11505     2.34   0.025     3.394201    48.52369
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.077               1                   0.2993
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  9.960281  Chi-sq( 9)  P-value =  .3537

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.514119    .916649     1.65   0.108    -.3467777    3.375015
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    35) =    3.62
            Prob > F =    0.0373

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      38
-------------+------------------------------           F(  3,    34) =    2.32
       Model |  72.1000174     3  24.0333391           Prob > F      =  0.0928
    Residual |  352.242088    34  10.3600614           R-squared     =  0.1699
-------------+------------------------------           Adj R-squared =  0.0967
       Total |  424.342105    37  11.4687055           Root MSE      =  3.2187

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1774614   .0929569    -1.91   0.065    -.3663725    .0114498
Fiscal_Rel~e |
         L1. |  -.2673799   .1227007    -2.18   0.036    -.5167377   -.0180221
        L3D. |   .0060358   .1158527     0.05   0.959    -.2294053    .2414768
       _cons |   25.92921   11.32565     2.29   0.028     2.912726     48.9457
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.961               1                   0.3269
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  4.174809  Chi-sq( 9)  P-value =  .8995

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.506694   .9338333     1.61   0.116     -.391084    3.404471
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    34) =    3.48
            Prob > F =    0.0423
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      37
-------------+------------------------------           F(  3,    33) =    2.26
       Model |  72.2774471     3  24.0924824           Prob > F      =  0.0999
    Residual |  352.046877    33  10.6680872           R-squared     =  0.1703
-------------+------------------------------           Adj R-squared =  0.0949
       Total |  424.324324    36  11.7867868           Root MSE      =  3.2662

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1787105   .0947737    -1.89   0.068     -.371529     .014108
Fiscal_Rel~e |
         L1. |  -.2678032   .1254506    -2.13   0.040    -.5230344   -.0125719
        L4D. |   .0093685   .1187238     0.08   0.938    -.2321768    .2509138
       _cons |   25.98944   11.57503     2.25   0.032     2.439859    49.53903
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.984               1                   0.3213
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   4.74856  Chi-sq( 9)  P-value =  .8557

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.498531   .9448595     1.59   0.122    -.4238004    3.420862
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    33) =    3.37
            Prob > F =    0.0467

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      36
-------------+------------------------------           F(  3,    32) =    2.30
       Model |  75.2280317     3  25.0760106           Prob > F      =  0.0962
    Residual |  349.077524    32  10.9086726           R-squared     =  0.1773
-------------+------------------------------           Adj R-squared =  0.1002
       Total |  424.305556    35  12.1230159           Root MSE      =  3.3028

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1839477   .0966019    -1.90   0.066    -.3807192    .0128239
Fiscal_Rel~e |
         L1. |   -.276069   .1275199    -2.16   0.038    -.5358185   -.0163195
        L5D. |   -.059698   .1213914    -0.49   0.626    -.3069642    .1875682
       _cons |   26.79871   11.76652     2.28   0.030     2.831087    50.76633
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.174               1                   0.2785
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   5.83838  Chi-sq( 9)  P-value =   .756

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.500802   .9341944     1.61   0.118    -.4020897    3.403694
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    32) =    3.44
            Prob > F =    0.0442
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -107.288   Log-Lik Full Model:           -103.007
D(37):                         206.015   LR(3):                           8.561
                                         Prob > LR:                       0.036
R2:                              0.188   Adjusted R2:                     0.123
AIC:                             5.220   AIC*n:                         214.015
BIC:                            68.613   BIC':                            2.580
BIC used by Stata:             220.869   AIC used by Stata:             214.015

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -105.165   Log-Lik Full Model:           -100.981
D(35):                         201.961   LR(4):                           8.368
                                         Prob > LR:                       0.079
R2:                              0.189   Adjusted R2:                     0.096
AIC:                             5.299   AIC*n:                         211.961
BIC:                            72.851   BIC':                            6.387
BIC used by Stata:             220.406   AIC used by Stata:             211.961

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -101.885   Log-Lik Full Model:            -97.760
D(33):                         195.520   LR(5):                           8.250
                                         Prob > LR:                       0.143
R2:                              0.191   Adjusted R2:                     0.068
AIC:                             5.321   AIC*n:                         207.520
BIC:                            74.623   BIC':                           10.067
BIC used by Stata:             217.502   AIC used by Stata:             207.520

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Rel
> iance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -99.766   Log-Lik Full Model:            -95.578
D(31):                         191.156   LR(6):                           8.375
                                         Prob > LR:                       0.212
R2:                              0.198   Adjusted R2:                     0.043
AIC:                             5.399   AIC*n:                         205.156
BIC:                            78.391   BIC':                           13.450
BIC used by Stata:             216.619   AIC used by Stata:             205.156

(Indices saved in matrix fs_mod1)
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE
d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  9,    31) =    2.61
       Model |  193.960731     9  21.5511924           Prob > F      =  0.0227
    Residual |  256.039269    31  8.25933125           R-squared     =  0.4310
-------------+------------------------------           Adj R-squared =  0.2658
       Total |         450    40       11.25           Root MSE      =  2.8739

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.4339092   .1334427    -3.25   0.003    -.7060673   -.1617511
Fiscal_Rel~e |
         L1. |  -.2271038   .1977784    -1.15   0.260    -.6304756     .176268
         D1. |    .054345   .1748471     0.31   0.758    -.3022579     .410948
log_gdp_pe~2 |
         L1. |   3.672064   1.737803     2.11   0.043     .1277923    7.216336
REGION_DEM~E |
         L1. |  -.7536936   .2745843    -2.74   0.010    -1.313712   -.1936753
WORLD_DEM_~E |
         L1. |   .3920107   .1281994     3.06   0.005     .1305463    .6534752
Civil_War_~h |
         L1. |  (dropped)
log_gdp_pe~2 |
         D1. |  -.4570809   4.677841    -0.10   0.923      -9.9976    9.083438
REGION_DEM~E |
         D1. |  -.2844234   .2787567    -1.02   0.315    -.8529513    .2841046
WORLD_DEM_~E |
         D1. |   .1989278   .4418172     0.45   0.656    -.7021643     1.10002
       _cons |  -22.72221   20.88221    -1.09   0.285    -65.31175    19.86734
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.024               1                   0.8776
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :        41  Chi-sq(40)  P-value =  .4265

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5233901   .4674662     1.12   0.271    -.4300135    1.476794
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    31) =    5.62
            Prob > F =    0.0083
```

```
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -107.288   Log-Lik Full Model:            -95.728
D(30):                         191.455   LR(9):                          23.121
                                         Prob > LR:                       0.006
R2:                              0.431   Adjusted R2:                     0.266
AIC:                             5.206   AIC*n:                         213.455
BIC:                            80.048   BIC':                           10.302
BIC used by Stata:             228.591   AIC used by Stata:             211.455

(Indices saved in matrix fs_mod1)


. test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0
       Constraint 4 dropped

       F(  3,    31) =    4.09
            Prob > F =    0.0148

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    31) =    0.41
            Prob > F =    0.7467
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE MEXICO TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

MEXICO UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       176

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.685            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9741

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0124266   .0181474    -0.68   0.494    -.0482469    .0233936
         LD. |   .0086846   .0775589     0.11   0.911    -.1444052    .1617744
      _trend |   .0149043   .0067997     2.19   0.030     .0014827    .0283258
       _cons |  -.7956579   .8189981    -0.97   0.333    -2.412239    .8209232
------------------------------------------------------------------------------
```

```
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       176

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.199            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9387

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0035543   .0178837    -0.20   0.843    -.0388526    .0317439
         LD. |   .0275757   .0779215     0.35   0.724    -.1262235    .1813749
       _cons |   .3552614    .635406     0.56   0.577    -.8988847    1.609407
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.346            -4.016            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |     -1.018   .1089229    -9.35   0.000    -1.233025   -.8029751
         LD. |    .016084   .0769409     0.21   0.835    -.1358052    .1679732
      _trend |   .0144667   .0068998     2.10   0.038     .0008458    .0280875
       _cons |  -1.118649    .741444    -1.51   0.133    -2.582334    .3450359
------------------------------------------------------------------------------
```

```
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.018            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9662571   .1071449    -9.02   0.000    -1.177763   -.7547513
         LD. |  -.0098785   .0766928    -0.13   0.898    -.1612712    .1415143
       _cons |   .2513385   .3539092     0.71   0.479    -.4472841    .9499612
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       178

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.361            -4.014            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.4007

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.0736372   .0311921    -2.36   0.019    -.1352009   -.0120736
         LD. |   .0873106   .0766991     1.14   0.257    -.0640698     .238691
      _trend |   .0121514   .0052391     2.32   0.022      .001811    .0224917
       _cons |  -.5394532   .4329275    -1.25   0.214    -1.393918     .315012
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       176

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.646            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |   -.802693   .1049805    -7.65   0.000    -1.009909    -.595477
         LD. |  -.1605695   .0757902    -2.12   0.036    -.3101682   -.0109708
      _trend |   .0033084   .0038741     0.85   0.394    -.0043385    .0109552
       _cons |  -.1871944   .4127018    -0.45   0.651    -1.001807    .6274179
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       176

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.609            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -.7956651   .1045755    -7.61   0.000    -1.002073    -.589257
        LD2. |  -.1635769   .0756491    -2.16   0.032    -.3128909   -.0142629
       _cons |   .1178341   .2065717     0.57   0.569    -.2898912    .5255595
------------------------------------------------------------------------------
```

```
dfuller D.Fiscal_Reliance, regress lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.294            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -.7461366   .1185419    -6.29   0.000    -.9801402    -.512133
        LD2. |  -.2377933   .1034018    -2.30   0.023    -.4419102   -.0336765
       L2D2. |  -.0956205   .0743957    -1.29   0.200     -.242479    .0512379
       _cons |   .0581031   .2004404     0.29   0.772    -.3375697    .4537759
------------------------------------------------------------------------------
```

MEXICO CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       179
maximum lag: 1                                      F(  1,   177)  =     19.59
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   1.148421   .2594455     4.43   0.000     .6364161    1.660425
       _cons |   22.91343   1.912317    11.98   0.000     19.13956    26.68731
------------------------------------------------------------------------------

predict residual, res
(6 missing values generated)


dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       171

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.612            -4.016            -3.441            -3.141
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.7877

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0427677   .0265301    -1.61   0.109    -.0951454    .0096099
         LD. |  -.0250681   .0785909    -0.32   0.750    -.1802279    .1300917
      _trend |   .0078991   .0082735     0.95   0.341    -.0084351    .0242333
       _cons |  -.6728476   .8970227    -0.75   0.454    -2.443813    1.098118
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       171

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.777            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3920

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0465875   .0262198    -1.78   0.077    -.0983503    .0051753
         LD. |  -.0157683   .0779644    -0.20   0.840    -.1696845     .138148
       _cons |   .0768054   .4336208     0.18   0.860    -.7792423    .9328531
------------------------------------------------------------------------------
```

Test statistic: -1.78

Critical Values:

-3.0462

Not significant.

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

ECM COINTEGRATION TESTS

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     175
-------------+------------------------------           F(  3,   171) =    0.61
       Model |  38.4335437     3  12.8111812           Prob > F      =  0.6100
    Residual |  3597.28074   171  21.0367295           R-squared     =  0.0106
-------------+------------------------------           Adj R-squared = -0.0068
       Total |  3635.71429   174  20.8949097           Root MSE      =  4.5866

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0147657   .0208891    -0.71   0.481    -.0559994     .026468
Fiscal_Rel~e |
         L1. |   .0590637    .044551     1.33   0.187    -.0288769    .1470044
         D1. |   -.008032   .1274291    -0.06   0.950    -.2595686    .2435046
       _cons |   .3538805   .6289563     0.56   0.574    -.8876378    1.595399
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.192               1                   0.6612
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  2.637102  Chi-sq( 9)  P-value =   .977

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -4.000071   4.786663    -0.84   0.405    -13.44863    5.448486
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   171) =    0.88
            Prob > F =    0.4171

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     174
-------------+------------------------------           F(  3,   170) =    0.98
       Model |  61.6178904     3  20.5392968           Prob > F      =  0.4050
    Residual |  3574.01429   170  21.0236135           R-squared     =  0.0169
-------------+------------------------------           Adj R-squared = -0.0004
       Total |  3635.63218   173  21.0152149           Root MSE      =  4.5852

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.014285   .0206007    -0.69   0.489    -.0549512    .0263812
Fiscal_Rel~e |
         L1. |   .0500024   .0449764     1.11   0.268    -.0387817    .1387865
         LD. |    .135732    .128726     1.05   0.293    -.1183752    .3898391
       _cons |   .3751178   .6273601     0.60   0.551    -.8633015    1.613537
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.312               1                   0.5766
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.978096  Chi-sq( 9)  P-value =  .9918

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -3.500349   4.353056    -0.80   0.422    -12.09335    5.092656
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   170) =    0.63
            Prob > F =    0.5351
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     172
-------------+------------------------------           F(  3,   168) =    1.40
       Model |  88.7232308     3  29.5744103           Prob > F      =  0.2444
    Residual |  3546.74189   168  21.1115588           R-squared     =  0.0244
-------------+------------------------------           Adj R-squared =  0.0070
       Total |  3635.46512   171  21.2600299           Root MSE      =  4.5947

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0160881   .0207926    -0.77   0.440    -.0571366    .0249604
Fiscal_Rel~e |
         L1. |   .0729293   .0452074     1.61   0.109    -.0163185    .1621771
        L2D. |  -.2007099    .129739    -1.55   0.124    -.4568387    .0554189
       _cons |   .3273452   .6287569     0.52   0.603    -.9139374    1.568628
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.204               1                   0.6512
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   2.13469  Chi-sq( 9)  P-value =  .9892

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -4.533121   4.999293    -0.91   0.366    -14.40265    5.336409
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   168) =    1.30
            Prob > F =    0.2740
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     170
-------------+------------------------------           F(  3,   166) =    0.99
       Model |  63.6108051     3  21.2036017           Prob > F      =  0.4011
    Residual |  3571.68331   166  21.5161645           R-squared     =  0.0175
-------------+------------------------------           Adj R-squared = -0.0003
       Total |  3635.29412   169  21.5106161           Root MSE      =  4.6386

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0177133   .0212571    -0.83   0.406    -.0596825    .0242558
Fiscal_Rel~e |
         L1. |   .0725936   .0465048     1.56   0.120    -.0192236    .1644107
        L3D. |  -.1450717   .1334469    -1.09   0.279    -.4085437    .1184002
       _cons |   .3652316   .6346017     0.58   0.566    -.8876991    1.618162
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.065               1                   0.7994
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  2.222552  Chi-sq( 9)  P-value =  .9874

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -4.098242    4.14228    -0.99   0.324    -12.27658    4.080101
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   166) =    1.22
            Prob > F =    0.2983

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     168
-------------+------------------------------           F(  3,   164) =    0.84
       Model |  55.2681561     3  18.4227187           Prob > F      =  0.4716
    Residual |  3579.85089   164  21.8283591           R-squared     =  0.0152
-------------+------------------------------           Adj R-squared = -0.0028
       Total |  3635.11905   167  21.7671799           Root MSE      =  4.6721

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0186372   .0217406    -0.86   0.393    -.0615647    .0242903
Fiscal_Rel~e |
         L1. |   .0725673   .0476604     1.52   0.130    -.0215398    .1666744
        L4D. |  -.1196429    .138023    -0.87   0.387     -.392174    .1528882
       _cons |   .3882781   .6402135     0.61   0.545    -.8758455    1.652402
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.214               1                   0.6433
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.805825  Chi-sq( 9)  P-value =  .9942

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -3.893683   3.781777    -1.03   0.305    -11.36093    3.573566
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   164) =    1.16
            Prob > F =    0.3163

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     167
-------------+------------------------------           F(  3,   163) =    0.90
       Model |  59.5442541     3  19.8480847           Prob > F      =  0.4402
    Residual |  3575.48569   163   21.935495           R-squared     =  0.0164
-------------+------------------------------           Adj R-squared = -0.0017
       Total |  3635.02994   166  21.8977707           Root MSE      =  4.6835

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0120448   .0218199    -0.55   0.582    -.0551309    .0310412
Fiscal_Rel~e |
         L1. |   .0489687   .0487016     1.01   0.316    -.0471987    .1451361
        L5D. |   .1325604   .1407517     0.94   0.348    -.1453713    .4104921
       _cons |   .3316357   .6413999     0.52   0.606    -.9348884     1.59816
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.297               1                   0.5860
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.721773  Chi-sq( 9)  P-value =  .9951

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -4.065535   6.133774    -0.66   0.508    -16.17744    8.046367
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   163) =    0.51
            Prob > F =    0.6041

.
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -513.770   Log-Lik Full Model:           -512.840
D(171):                       1025.679   LR(3):                           1.860
                                         Prob > LR:                       0.602
R2:                              0.011   Adjusted R2:                    -0.007
AIC:                             5.907   AIC*n:                        1033.679
BIC:                           142.501   BIC':                           13.635
BIC used by Stata:            1046.338   AIC used by Stata:            1033.679

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -508.888   Log-Lik Full Model:           -507.400
D(168):                       1014.800   LR(4):                           2.976
                                         Prob > LR:                       0.562
R2:                              0.017   Adjusted R2:                    -0.006
AIC:                             5.924   AIC*n:                        1024.800
BIC:                           149.047   BIC':                           17.637
BIC used by Stata:            1040.567   AIC used by Stata:            1024.800

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -503.995   Log-Lik Full Model:           -501.306
D(165):                       1002.612   LR(5):                           5.379
                                         Prob > LR:                       0.371
R2:                              0.031   Adjusted R2:                     0.002
AIC:                             5.933   AIC*n:                        1014.612
BIC:                           154.238   BIC':                           20.330
BIC used by Stata:            1033.462   AIC used by Stata:            1014.612

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -499.091   Log-Lik Full Model:           -495.570
D(162):                        991.140   LR(6):                           7.041
                                         Prob > LR:                       0.317
R2:                              0.041   Adjusted R2:                     0.005
AIC:                             5.948   AIC*n:                        1005.140
BIC:                           160.097   BIC':                           23.738
BIC used by Stata:            1027.050   AIC used by Stata:            1005.140

(Indices saved in matrix fs_mod1)

.
```

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -338.308   Log-Lik Full Model:           -338.248
D(104):                        676.496   LR(3):                           0.121
                                         Prob > LR:                       0.989
R2:                              0.001   Adjusted R2:                    -0.028
AIC:                             6.338   AIC*n:                         684.496
BIC:                           189.554   BIC':                           13.925
BIC used by Stata:             695.224   AIC used by Stata:             684.496

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 != .

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -335.662   Log-Lik Full Model:           -335.080
D(102):                        670.161   LR(4):                           1.164
                                         Prob > LR:                       0.884
R2:                              0.011   Adjusted R2:                    -0.028
AIC:                             6.357   AIC*n:                         680.161
BIC:                           193.532   BIC':                           17.527
BIC used by Stata:             693.525   AIC used by Stata:             680.161

(Indices saved in matrix fs_mod1)


quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 !=.

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -333.012   Log-Lik Full Model:           -331.826
D(100):                        663.651   LR(5):                           2.372
                                         Prob > LR:                       0.796
R2:                              0.022   Adjusted R2:                    -0.027
AIC:                             6.374   AIC*n:                         675.651
BIC:                           197.307   BIC':                           20.945
BIC used by Stata:             691.632   AIC used by Stata:             675.651

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

      Source |       SS       df       MS              Number of obs =     108
-------------+------------------------------           F(  3,   104) =    0.04
       Model |  3.72302884     3  1.24100961           Prob > F      =  0.9897
    Residual |  3321.27697   104  31.9353555           R-squared     =  0.0011
-------------+------------------------------           Adj R-squared = -0.0277
       Total |        3325   107  31.0747664           Root MSE      =  5.6511

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0057313   .0326567    -0.18   0.861    -.0704907     .059028
Fiscal_Rel~e |
         L1. |   .0100024    .073923     0.14   0.893    -.1365898    .1565946
         D1. |  -.0375924    .160602    -0.23   0.815    -.3560723    .2808874
       _cons |   .9180638   .9295824     0.99   0.326    -.9253331    2.761461
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.021               1                   0.8860
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  2.510054  Chi-sq( 9)  P-value =  .9806

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -1.74521   9.740322    -0.18   0.858    -21.06064    17.57021
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   104) =    0.02
            Prob > F =    0.9844
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE d.Fiscal_Reliance d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =     107
-------------+------------------------------           F(  9,    97) =    1.10
       Model |  307.871856     9  34.207984           Prob > F      =  0.3702
    Residual |  3016.42721    97  31.0971877           R-squared     =  0.0926
-------------+------------------------------           Adj R-squared =  0.0084
       Total |  3324.29907   106  31.3613119           Root MSE      =  5.5765

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1215847   .0608971    -2.00   0.049    -.2424485   -.0007209
Fiscal_Rel~e |
         L1. |    .005899   .0780862     0.08   0.940    -.1490804    .1608784
log_gdp_pe~2 |
         L1. |  -.5079114   1.600761    -0.32   0.752    -3.684979    2.669156
REGION_DEM~E |
         L1. |   .1307097    .055653     2.35   0.021      .020254    .2411655
WORLD_DEM_~E |
         L1. |    .002551   .1455359     0.02   0.986    -.2862975    .2913995
Fiscal_Rel~e |
         D1. |   .0367402    .164773     0.22   0.824    -.2902886    .3637691
log_gdp_pe~2 |
         D1. |  -4.274123    12.8845    -0.33   0.741    -29.84629    21.29804
REGION_DEM~E |
         D1. |  -.1813196   .2208389    -0.82   0.414    -.6196237    .2569846
WORLD_DEM_~E |
         D1. |   .3841815   .3690765     1.04   0.300    -.3483331    1.116696
       _cons |   5.794809   11.86438     0.49   0.626    -17.75269    29.34231
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.026               1                   0.8714
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  46.63513  Chi-sq(54)  P-value =  .7514

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0485178   .6351936    -0.08   0.939    -1.309201    1.212166
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    97) =    2.15
            Prob > F =    0.1217
```

```
test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,    97) =    2.82
            Prob > F =    0.0432

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    97) =    0.50
            Prob > F =    0.6810


fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -335.662   Log-Lik Full Model:           -330.463
D(97):                         660.926   LR(9):                          10.399
                                         Prob > LR:                       0.319
R2:                              0.093   Adjusted R2:                     0.008
AIC:                             6.364   AIC*n:                         680.926
BIC:                           207.661   BIC':                           31.657
BIC used by Stata:             707.654   AIC used by Stata:             680.926

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE NIGERIA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

NIGERIAN UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root        Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.519            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3184

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2127113   .0844372    -2.52   0.016    -.3832356    -.042187
         LD. |   .2062471   .1494719     1.38   0.175    -.0956176    .5081118
      _trend |   .1818578   .1944693     0.94   0.355    -.2108808    .5745965
       _cons |   4.240142    6.49525     0.65   0.518    -8.877282    17.35757
------------------------------------------------------------------------------
```

`dfuller polity_s, regress lags(1)`

```
Augmented Dickey-Fuller test for unit root        Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.563            -3.614            -2.944            -2.606
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1009

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2158911   .0842425    -2.56   0.014    -.3858994   -.0458829
         LD. |   .2300953   .1470601     1.56   0.125    -.0666841    .5268747
       _cons |   8.749236   4.345345     2.01   0.051    -.0200254     17.5185
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.318            -4.205            -3.524            -3.194
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0030

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9114381   .2110805    -4.32   0.000    -1.338048   -.4848285
         LD. |   .0206587   .1579772     0.13   0.897    -.2986251    .3399425
      _trend |   .2217884   .2211905     1.00   0.322    -.2252542    .6688311
       _cons |  -5.626318   5.893615    -0.95   0.345    -17.53776    6.285122
------------------------------------------------------------------------------
```

dfuller polity_s_FD, regress lags(1)

```
Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.200            -3.621            -2.947            -2.607
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0007

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8631855   .2055353    -4.20   0.000    -1.278273   -.4480985
         LD. |  -.0032812   .1561729    -0.02   0.983    -.3186788    .3121164
       _cons |  -.3923571   2.736576    -0.14   0.887    -5.918983    5.134269
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.521            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8217

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.1033978   .0679633    -1.52   0.136    -.2406524    .0338567
         LD. |  -.0035623   .1551675    -0.02   0.982    -.3169295    .3098048
      _trend |   .0914437   .1493435     0.61   0.544    -.2101617    .3930491
       _cons |   5.779528   2.784664     2.08   0.044     .1557847    11.40327
------------------------------------------------------------------------------

.
.
.
```

```
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.709            -3.614            -2.944            -2.606
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.4267

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0704677   .0412425    -1.71   0.095    -.1536984     .012763
         LD. |  -.0276138   .1489921    -0.19   0.854     -.328292    .2730644
       _cons |   6.061836   2.725718     2.22   0.032     .5611142    11.56256
------------------------------------------------------------------------------

.
.
.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.670            -4.205            -3.524            -3.194
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0008

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.070289   .2291986    -4.67   0.000    -1.533517   -.6070617
         LD. |   .0178753   .1579875     0.11   0.910    -.3014293      .33718
      _trend |  -.0991137   .0992125    -1.00   0.324    -.2996297    .1014023
       _cons |   4.303578   2.748563     1.57   0.125    -1.251476    9.858632
------------------------------------------------------------------------------

.
.
.
```

```
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        44

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.562            -3.621            -2.947            -2.607
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0002

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.021684   .2239695    -4.56   0.000    -1.473999   -.5693682
         LD. |  -.0067589   .1560475    -0.04   0.966    -.3219032    .3083854
       _cons |   1.884071    1.29955     1.45   0.155    -.7404237    4.508567
------------------------------------------------------------------------------
```

NIGERIAN CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Mackinnon 1991, Table 1 (p. 275).

Polity and Fiscal Reliance

```
newey polity_s fiscal_reliance_2, lag(1)

Regression with Newey-West standard errors          Number of obs  =        47
maximum lag: 1                                      F(  1,    45)  =      0.72
                                                    Prob > F       =    0.4015

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscal_rel~2 |  -.1935301   .2284856    -0.85   0.401    -.6537237    .2666635
       _cons |   55.10021   15.70263     3.51   0.001     23.47348    86.72693
------------------------------------------------------------------------------predict


dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.539            -4.196            -3.520            -3.192
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3089

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.2205093   .0868568    -2.54   0.015    -.3959201   -.0450984
         LD. |    .202731   .1498696     1.35   0.184    -.0999367    .5053987
      _trend |   .2425094   .1957745     1.24   0.222    -.1528653     .637884
       _cons |  -6.222998   5.336488    -1.17   0.250    -17.00025    4.554257
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        45

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.404            -3.614            -2.944            -2.606
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1405

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |   -.208947   .0869014    -2.40   0.021    -.3843212   -.0335728
         LD. |   .2244875   .1497807     1.50   0.141    -.0777823    .5267573
       _cons |  -.3837845   2.517278    -0.15   0.880    -5.463858    4.696289
------------------------------------------------------------------------------
```

-2.40 is the test statistic

Critical Values:

-3.0462 for 10% level

We cannot reject the hypothesis of non-cointegration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

Co-integration ECM F-test strategy

No lags of differenced Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      46
-------------+------------------------------           F(  3,    42) =    1.78
       Model |  1551.36345     3  517.12115            Prob > F      =  0.1653
    Residual |  12189.9409    42  290.236688           R-squared     =  0.1129
-------------+------------------------------           Adj R-squared =  0.0495
       Total |  13741.3043    45  305.362319           Root MSE      =  17.036

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1577613    .083632    -1.89   0.066    -.3265376    .0110149
fiscal_rel~2 |
         L1. |   .0783153   .0916144     0.85   0.397    -.1065701    .2632007
         D1. |  -.0164634   .3397029    -0.05   0.962    -.7020117    .6690849
       _cons |   1.848442   7.719611     0.24   0.812    -13.73036    17.42725
------------------------------------------------------------------------------
```

```
nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4964162   .6910248    -0.72   0.477    -1.890961    .8981282
------------------------------------------------------------------------------
```

```
test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    42) =    2.66
            Prob > F =    0.0815
```

10 Percent Critical Value is 4.95 for T equal to 50 and 2 non-stationary variables in the equation.

No evidence of co-integration

```
whitetst

White's general test statistic :  8.094557  Chi-sq( 9)  P-value =  .5246

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.457               1                   0.2275
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
1 lag of differenced Polity

. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      45
-------------+------------------------------           F(  3,    41) =    2.79
       Model |  2331.95221     3  777.317403           Prob > F      =  0.0523
    Residual |  11409.1589    41  278.272168           R-squared     =  0.1697
-------------+------------------------------           Adj R-squared =  0.1090
       Total |  13741.1111    44   312.29798           Root MSE      =  16.681

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1797726   .0827711    -2.17   0.036    -.3469323   -.0126129
fiscal_rel~2 |
         L1. |    .097028   .0891582     1.09   0.283    -.0830306    .2770867
         LD. |  -.4717831   .3197978    -1.48   0.148    -1.117628    .1740617
       _cons |   2.240161   7.258112     0.31   0.759    -12.41789    16.89822
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    41) =    3.38
            Prob > F =    0.0439

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5397264   .5868453    -0.92   0.363    -1.724885    .6454317
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  7.765817  Chi-sq( 9)  P-value =  .5579

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.507               1                   0.2196
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

2 lags of Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.2.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      44
-------------+------------------------------           F(  3,    40) =    2.20
       Model |  1948.97914     3  649.659715           Prob > F      =  0.1026
    Residual |  11791.9299    40  294.798249           R-squared     =  0.1418
-------------+------------------------------           Adj R-squared =  0.0775
       Total |  13740.9091    43  319.556025           Root MSE      =   17.17

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1844025   .0883934    -2.09   0.043    -.3630522   -.0057527
fiscal_rel~2 |
         L1. |   .1197201   .0951708     1.26   0.216    -.0726271    .3120674
        L2D. |  -.0033587   .3344319    -0.01   0.992    -.6792709    .6725534
       _cons |  -.1466847   7.632408    -0.02   0.985    -15.57236    15.27899
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    40) =    3.22
            Prob > F =    0.0505

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6492328   .6255221    -1.04   0.306     -1.91346    .6149944
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  9.616352  Chi-sq( 9)  P-value =  .3824

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.142               1                   0.2852
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

3 lags of Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.3.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      43
-------------+------------------------------           F(  3,    39) =    2.58
       Model |  2278.15865     3  759.386215           Prob > F      =  0.0670
    Residual |   11462.539    39  293.911257           R-squared     =  0.1658
-------------+------------------------------           Adj R-squared =  0.1016
       Total |  13740.6977    42  327.159468           Root MSE      =  17.144

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.201231   .0903891    -2.23   0.032    -.3840602   -.0184017
fiscal_rel~2 |
         L1. |   .1496335   .0994096     1.51   0.140    -.0514415    .3507084
        L3D. |   .0931505   .3327262     0.28   0.781    -.5798517    .7661526
       _cons |  -1.879639   7.707854    -0.24   0.809    -17.47025    13.71097
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    39) =    3.65
            Prob > F =    0.0352

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7435905   .5994775    -1.24   0.222    -1.956148    .4689671
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  17.44046  Chi-sq( 9)  P-value =  .0422

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.028               1                   0.3106
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

Four lags of Polity

```
. regress D.polity_s l.polity_s l.fiscal_reliance_2 L.4.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      42
-------------+------------------------------           F(  3,    38) =    2.95
       Model |  2590.61619     3  863.538731           Prob > F      =  0.0449
    Residual |  11129.0267    38  292.869123           R-squared     =  0.1888
-------------+------------------------------           Adj R-squared =  0.1248
       Total |  13719.6429    41  334.625436           Root MSE      =  17.113

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2374884   .0934783    -2.54   0.015    -.4267253   -.0482516
fiscal_rel~2 |
         L1. |   .1875245   .1061414     1.77   0.085    -.0273476    .4023966
        L4D. |  -.1869725   .3344805    -0.56   0.579    -.8640928    .4901478
       _cons |  -2.733134   7.833018    -0.35   0.729    -18.59025    13.12398
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    38) =    4.41
            Prob > F =    0.0189

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7896153   .5203064    -1.52   0.137     -1.84292    .2636898
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  14.01448  Chi-sq( 9)  P-value =  .1218

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.743               1                   0.3888
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

5 LAGS OF FISCAL RELIANCE

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 L.5.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  3,    37) =    3.80
       Model |  3231.23319     3  1077.07773           Prob > F      =  0.0180
    Residual |   10488.279    37     283.467           R-squared     =  0.2355
-------------+------------------------------           Adj R-squared =  0.1735
       Total |  13719.5122    40  342.987805           Root MSE      =  16.836

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2824052   .0966935    -2.92   0.006    -.4783249   -.0864855
fiscal_rel~2 |
         L1. |   .2581715   .1141904     2.26   0.030     .0267998    .4895431
        L5D. |   -.213564   .3329797    -0.64   0.525     -.888245    .4611169
       _cons |  -6.081244   7.993471    -0.76   0.452    -22.27756    10.11507
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    37) =    5.69
            Prob > F =    0.0070

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9141882   .4569483    -2.00   0.053    -1.840053     .011677
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  25.91514  Chi-sq( 9)  P-value =  .0021

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.738               1                   0.0295
---------------------------------------------------------------------------
                        H0: no serial correlation
```

BECAUSE BOTH AUTOCORRELATION AND HETEROSKEDASTICITY DETECTED, RE-RAN THE MODELS WITH NEWEY WEST STANDARD ERRORS.

```
newey D.polity_s l.polity_s l.fiscal_reliance_2 L.5.d.fiscal_reliance_2, lag(1)

Regression with Newey-West standard errors         Number of obs  =        41
maximum lag: 1                                     F(  3,    37)  =      1.78
                                                   Prob > F       =    0.1682

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2824052   .1437992    -1.96   0.057    -.5737701    .0089598
fiscal_rel~2 |
         L1. |   .2581715   .1373315     1.88   0.068    -.0200885    .5364314
        L5D. |   -.213564   .5070163    -0.42   0.676    -1.240877    .8137485
       _cons |  -6.081244   6.996607    -0.87   0.390    -20.25772    8.095229
------------------------------------------------------------------------------


. outreg using october, nolabel 3aster bracket bdec(3) append

. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    37) =    2.23
            Prob > F =    0.1219

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9141882   .3922383    -2.33   0.025    -1.708938   -.1194379
------------------------------------------------------------------------------
```

CHOOSING A DISTRIBUTED LAG MODEL WITH THE BIC STATISTIC

```
quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -196.360     Log-Lik Full Model:         -193.605
D(42):                       387.210     LR(3):                         5.511
                                         Prob > LR:                     0.138
R2:                            0.113     Adjusted R2:                   0.050
AIC:                           8.592     AIC*n:                       395.210
BIC:                         226.407     BIC':                          5.975

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -192.586     Log-Lik Full Model:         -188.395
D(40):                       376.791     LR(4):                         8.381
                                         Prob > LR:                     0.079
R2:                            0.170     Adjusted R2:                   0.087
AIC:                           8.595     AIC*n:                       386.791
BIC:                         224.524     BIC':                          6.846

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance
fiscal_reliance ambiguous abbreviation
r(111);

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -188.800     Log-Lik Full Model:         -184.160
D(38):                       368.321     LR(5):                         9.280
                                         Prob > LR:                     0.098
R2:                            0.190     Adjusted R2:                   0.084
AIC:                           8.644     AIC*n:                       380.321
BIC:                         224.521     BIC':                          9.641

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -185.003     Log-Lik Full Model:         -179.790
D(36):                       359.579     LR(6):                        10.427
                                         Prob > LR:                     0.108
R2:                            0.215     Adjusted R2:                   0.085
AIC:                           8.688     AIC*n:                       373.579
BIC:                         224.176     BIC':                         12.141

(Indices saved in matrix fs_mod1)
```

```
quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2 L.4.d.fiscal_reliance
fiscal_reliance ambiguous abbreviation
r(111);

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2 L.4.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -181.163     Log-Lik Full Model:         -175.594
D(34):                       351.188     LR(7):                        11.138
                                         Prob > LR:                     0.133
R2:                            0.233     Adjusted R2:                   0.075
AIC:                           8.743     AIC*n:                       367.188
BIC:                         224.107     BIC':                         15.026

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_re
> liance_2 L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -177.343     Log-Lik Full Model:         -170.176
D(32):                       340.352     LR(8):                        14.334
                                         Prob > LR:                     0.073
R2:                            0.295     Adjusted R2:                   0.119
AIC:                           8.740     AIC*n:                       358.352
BIC:                         221.518     BIC':                         15.375

(Indices saved in matrix fs_mod1)

.
```

THE BIC CHOOSES 5 LAGS OF FISCAL RELIANCE

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_reliance_2
L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  8,    32) =    1.67
       Model |  4047.77517     8  505.971896           Prob > F      =  0.1433
    Residual |  9671.73703    32  302.241782           R-squared     =  0.2950
-------------+------------------------------           Adj R-squared =  0.1188
       Total |  13719.5122    40  342.987805           Root MSE      =  17.385

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.3075899    .106044    -2.90   0.007    -.5235945   -.0915853
fiscal_rel~2 |
         L1. |   .2870364   .1276369     2.25   0.032     .0270485    .5470243
         D1. |   .1796769   .3649695     0.49   0.626    -.5637416    .9230953
         LD. |    -.45831   .3389191    -1.35   0.186    -1.148666    .2320457
        L2D. |  -.0396957   .3446979    -0.12   0.909    -.7418225     .662431
        L3D. |  -.0123355   .3465749    -0.04   0.972    -.7182855    .6936145
        L4D. |   -.197197    .347259    -0.57   0.574    -.9045405    .5101465
        L5D. |  -.2366563   .3489951    -0.68   0.503    -.9475361    .4742234
       _cons |  -5.999501   9.145334    -0.66   0.517    -24.62794    12.62893
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          7.604               1                   0.0058
---------------------------------------------------------------------------
                        H0: no serial correlation
```

BECAUSE SERIAL CORRELATION DETECTED, NEWEY WEST STANDARD ERRORS ARE USED

```
newey D.polity_s l.polity_s l.fiscal_reliance_2 d.fiscal_reliance_2 L.d.fiscal_reliance_2
L.2.d.fiscal_reliance_2 L.3.d.fiscal_reliance_2 L
> .4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2, lag(1)

Regression with Newey-West standard errors          Number of obs  =        41
maximum lag: 1                                      F(  8,    32)  =      0.98
                                                    Prob > F       =    0.4687

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.3075899   .1465503    -2.10   0.044     -.606103   -.0090768
fiscal_rel~2 |
         L1. |   .2870364   .1687868     1.70   0.099     -.056771    .6308438
         D1. |   .1796769   .3520109     0.51   0.613    -.5373459    .8966996
         LD. |    -.45831   .3137401    -1.46   0.154    -1.097378    .1807576
        L2D. |  -.0396957   .2297758    -0.17   0.864    -.5077338    .4283424
        L3D. |  -.0123355    .307603    -0.04   0.968    -.6389023    .6142313
        L4D. |   -.197197   .3076954    -0.64   0.526    -.8239521    .4295581
        L5D. |  -.2366563   .5003294    -0.47   0.639    -1.255794    .7824813
       _cons |  -5.999501   9.403051    -0.64   0.528    -25.15289    13.15389
------------------------------------------------------------------------------

. outreg using october, nolabel 3aster bracket bdec(3) append
```

```
. test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    32) =    2.34
            Prob > F =    0.1128

. nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9331791   .4458129    -2.09   0.044     -1.84127    -.025088
------------------------------------------------------------------------------


test d.fiscal_reliance_2 L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2
L.3.d.fiscal_reliance_2 L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0
 ( 3)  L2D.fiscal_reliance_2 = 0
 ( 4)  L3D.fiscal_reliance_2 = 0
 ( 5)  L4D.fiscal_reliance_2 = 0
 ( 6)  L5D.fiscal_reliance_2 = 0

       F(  6,    32) =    0.87
            Prob > F =    0.5265
```

BECAUSE GDP PER CAPITA IS NOT MISSING ANY VALUES, WE CAN SIMPLY MOVE TO A SPECIFICATION WITH THE CONTROL VARIABLES AND NOT A TRUNCATED BIVARIATE RERUN.

```
regress D.polity_s l.polity_s l.fiscal_reliance_2 l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.civil_war_gledistsch d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_reliance_2
L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2 d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F( 15,    25) =    2.37
       Model |  8058.42332    15  537.228221           Prob > F      =  0.0271
    Residual |  5661.08888    25  226.443555           R-squared     =  0.5874
-------------+------------------------------           Adj R-squared =  0.3398
       Total |  13719.5122    40  342.987805           Root MSE      =  15.048

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.418235   .1048995    -3.99   0.001    -.6342796   -.2021904
fiscal_rel~2 |
         L1. |  -.0470287   .1990302    -0.24   0.815    -.4569391    .3628818
log_gdp_pe~2 |
         L1. |   128.4616   38.59452     3.33   0.003      48.9747    207.9485
REGION_DEM~E |
         L1. |  -1.811414   1.330928    -1.36   0.186    -4.552512    .9296827
WORLD_DEM_~E |
         L1. |   .7567044   .8957818     0.84   0.406    -1.088193    2.601602
civil_war_~h |
         L1. |   21.76205   10.63772     2.05   0.051    -.1467386    43.67084
fiscal_rel~2 |
         D1. |    .037358   .3735275     0.10   0.921    -.7319363    .8066523
         LD. |  -.7140038   .3179626    -2.25   0.034     -1.36886   -.0591475
        L2D. |  -.3335499   .3502113    -0.95   0.350    -1.054824    .3877239
        L3D. |  -.4292396   .4089555    -1.05   0.304    -1.271499      .41302
        L4D. |  -.2945266   .4241851    -0.69   0.494    -1.168152     .579099
        L5D. |  -.7773705   .3807017    -2.04   0.052     -1.56144    .0066994
log_gdp_pe~2 |
         D1. |  -6.927521   55.07585    -0.13   0.901    -120.3584    106.5033
REGION_DEM~E |
         D1. |  -.9015617   1.933748    -0.47   0.645    -4.884191    3.081068
WORLD_DEM_~E |
         D1. |   3.735761   3.157635     1.18   0.248     -2.76751    10.23903
       _cons |   -881.733   257.6831    -3.42   0.002    -1412.441   -351.0248
------------------------------------------------------------------------------

whitetst

White's general test statistic :        41  Chi-sq(40)  P-value =  .4265

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          4.683               1                   0.0305
---------------------------------------------------------------------------
                        H0: no serial correlation
```

THIS SPECIFICATION HAS SERIAL CORRELATION, SO WE HAVE TO RERUN WITH ROBUST STANDARD ERRORS.

```
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:     -177.343     Log-Lik Full Model:         -159.196
D(25):                       318.393     LR(15):                       36.293
                                         Prob > LR:                     0.002
R2:                            0.587     Adjusted R2:                   0.340
AIC:                           8.546     AIC*n:                       350.393
BIC:                         225.553     BIC':                         19.410

(Indices saved in matrix fs_mod1)

newey D.polity_s l.polity_s l.fiscal_reliance_2 l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.civil_war_gledistsch d.fiscal_reliance_2
L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2 L.3.d.fiscal_reliance_2
L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2 d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE, lag(1)

Regression with Newey-West standard errors          Number of obs  =        41
maximum lag: 1                                      F( 15,    25)  =      2.08
                                                    Prob > F       =    0.0511

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.418235   .1424546    -2.94   0.007    -.7116257   -.1248443
fiscal_rel~2 |
         L1. |  -.0470287   .2608262    -0.18   0.858    -.5842102    .4901529
log_gdp_pe~2 |
         L1. |   128.4616   53.83693     2.39   0.025     17.58237    239.3408
REGION_DEM~E |
         L1. |  -1.811414   1.384201    -1.31   0.203    -4.662229      1.0394
WORLD_DEM_~E |
         L1. |   .7567044   1.018484     0.74   0.464    -1.340904    2.854312
civil_war_~h |
         L1. |   21.76205   11.20602     1.94   0.063    -1.317189    44.84129
fiscal_rel~2 |
         D1. |    .037358   .4034406     0.09   0.927    -.7935435    .8682595
         LD. |  -.7140038   .2658677    -2.69   0.013    -1.261568    -.166439
        L2D. |  -.3335499   .3386615    -0.98   0.334    -1.031036    .3639366
        L3D. |  -.4292396   .3454236    -1.24   0.226    -1.140653    .2821736
        L4D. |  -.2945266   .3758349    -0.78   0.441    -1.068573    .4795199
        L5D. |  -.7773705   .4670623    -1.66   0.109    -1.739303    .1845623
log_gdp_pe~2 |
         D1. |  -6.927521   50.90236    -0.14   0.893    -111.7629    97.90785
REGION_DEM~E |
         D1. |  -.9015617   1.761894    -0.51   0.613     -4.53025    2.727126
WORLD_DEM_~E |
         D1. |   3.735761   2.046609     1.83   0.080    -.4793099    7.950832
       _cons |   -881.733   360.5159    -2.45   0.022    -1624.229   -139.2365
------------------------------------------------------------------------------

nlcom _b[L.fiscal_reliance_2]/_b[L.polity_s]

       _nl_1:  _b[L.fiscal_reliance_2]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1124455   .6290665     0.18   0.860    -1.183141    1.408032
------------------------------------------------------------------------------
```

```
test l.polity_s l.fiscal_reliance_2

 ( 1)  L.polity_s = 0
 ( 2)  L.fiscal_reliance_2 = 0

       F(  2,    25) =    4.44
            Prob > F =    0.0224


test d.fiscal_reliance_2 L.d.fiscal_reliance_2 L.2.d.fiscal_reliance_2
L.3.d.fiscal_reliance_2 L.4.d.fiscal_reliance_2 L.5.d.fiscal_reliance_2

 ( 1)  D.fiscal_reliance_2 = 0
 ( 2)  LD.fiscal_reliance_2 = 0
 ( 3)  L2D.fiscal_reliance_2 = 0
 ( 4)  L3D.fiscal_reliance_2 = 0
 ( 5)  L4D.fiscal_reliance_2 = 0
 ( 6)  L5D.fiscal_reliance_2 = 0

       F(  6,    25) =    1.47
            Prob > F =    0.2284

test l.fiscal_reliance_2 l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.civil_war_gledistsch

 ( 1)  L.fiscal_reliance_2 = 0
 ( 2)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 3)  L.REGION_DEM_DIFFUSE = 0
 ( 4)  L.WORLD_DEM_DIFFUSE = 0
 ( 5)  L.civil_war_gledistsch = 0

       F(  5,    25) =    2.54
            Prob > F =    0.0546

test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    25) =    1.11
            Prob > F =    0.3632
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE NORWAY TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

NORWAY UNIT-ROOT TESTS

Polity_s

```
. dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       184

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.365            -4.012            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8710

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0252525   .0185057    -1.36   0.174    -.0617685    .0112634
         LD. |   .0036923   .0749315     0.05   0.961    -.1441648    .1515495
      _trend |   .0132639   .0131786     1.01   0.316    -.0127405    .0392683
       _cons |   .8174905   .6819595     1.20   0.232    -.5281731    2.163154
------------------------------------------------------------------------------

.
.
.
. dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       184

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.020            -3.482            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.7458

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.008746   .0085728    -1.02   0.309    -.0256615    .0081695
         LD. |   -.007019   .0741746    -0.09   0.925     -.153377    .1393391
       _cons |   1.028937   .6488162     1.59   0.115     -.251279    2.309153
------------------------------------------------------------------------------

.
.
.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       182

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.596            -4.013            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.022705   .1065726    -9.60   0.000    -1.233014    -.812397
         LD. |   .0113224   .0749398     0.15   0.880    -.1365623    .1592071
      _trend |  -.0027978   .0062283    -0.45   0.654    -.0150886     .009493
       _cons |   .7436883   .6896143     1.08   0.282    -.6171834     2.10456
------------------------------------------------------------------------------


. dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       182

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.607            -3.483            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.020646   .1062363    -9.61   0.000    -1.230282   -.8110092
         LD. |   .0103229   .0747395     0.14   0.890     -.137161    .1578068
       _cons |   .4766752   .3488526     1.37   0.174    -.2117174    1.165068
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       188

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.406            -4.011            -3.438            -3.138
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0506

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0835088   .0245204    -3.41   0.001    -.1318862   -.0351314
         LD. |   .4533973   .0631609     7.18   0.000     .3287847      .57801
      _trend |   .0100192   .0042073     2.38   0.018     .0017184      .01832
       _cons |  -.5848352     .41656    -1.40   0.162    -1.406683    .2370128
------------------------------------------------------------------------------

dfuller Fiscal_Reliance, regress trend lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       186

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.791            -4.011            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2004

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.0689257   .0246981    -2.79   0.006    -.1176589   -.0201925
         LD. |    .605097   .0688711     8.79   0.000     .4692035    .7409904
        L2D. |  -.2786259   .0712338    -3.91   0.000    -.4191814   -.1380704
      _trend |   .0079068   .0040858     1.94   0.055     -.000155    .0159687
       _cons |  -.4569365   .4036725    -1.13   0.259    -1.253446    .3395726
------------------------------------------------------------------------------

dfuller Fiscal_Reliance, regress trend lags(3)

Augmented Dickey-Fuller test for unit root         Number of obs   =       184

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.954            -4.012            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1453

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.0765032   .0258964    -2.95   0.004    -.1276066   -.0253997
         LD. |   .6282903   .0749967     8.38   0.000     .4802933    .7762873
        L2D. |   -.307345   .0893392    -3.44   0.001    -.4836453   -.1310448
        L3D. |   .0746046   .0766016     0.97   0.331    -.0765595    .2257687
      _trend |   .0083994   .0041618     2.02   0.045     .0001866    .0166121
       _cons |  -.4922216    .411296    -1.20   0.233    -1.303865    .3194222
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       186

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.974            -4.011            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -.7424349   .0744357    -9.97   0.000    -.8893027    -.595567
         LD. |   .3305002   .0700365     4.72   0.000     .1923122    .4686881
      _trend |   .0020374   .0035676     0.57   0.569    -.0050017    .0090765
       _cons |  -.1064114   .3878614    -0.27   0.784    -.8716945    .6588717
------------------------------------------------------------------------------

dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       186

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.978            -3.481            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -.7407074   .0742371    -9.98   0.000    -.8871781   -.5942366
         LD. |   .3301772   .0699052     4.72   0.000     .1922534     .468101
       _cons |   .0860835   .1915435     0.45   0.654    -.2918341    .4640011
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       184

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -7.625            -3.482            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -.7146442   .0937288    -7.62   0.000    -.8995928   -.5296956
        LD2. |   .3177303   .0789375     4.03   0.000     .1619685    .4734922
       L2D2. |  -.0373709   .0770661    -0.48   0.628    -.1894402    .1146983
       _cons |   .0872848   .1941749     0.45   0.654    -.2958671    .4704366
```

NORWAY CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       187
maximum lag: 1                                      F(  1,   185)  =     40.10
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   1.303042   .2057663     6.33   0.000     .8970917    1.708992
       _cons |   59.69508   4.353991    13.71   0.000     51.10522    68.28494
------------------------------------------------------------------------------

predict residual, res
(6 missing values generated)


dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       181

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.484            -4.013            -3.439            -3.139
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8344

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0276622   .0186343    -1.48   0.139    -.0644363    .0091118
         LD. |   .1972893   .0729535     2.70   0.008     .0533187    .3412599
      _trend |   .0086945   .0127508     0.68   0.496    -.0164687    .0338577
       _cons |  -.5989765   1.291133    -0.46   0.643    -3.146973     1.94902
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       181

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.497            -3.483            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5349

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |   -.017942   .0119833    -1.50   0.136    -.0415897    .0057056
         LD. |   .1914019   .0723318     2.65   0.009     .0486637    .3341402
       _cons |   .2255453   .4519602     0.50   0.618    -.6663443    1.117435
------------------------------------------------------------------------------

dfuller residual, regress lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       178

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.424            -3.484            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5709

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0173899   .0122145    -1.42   0.156    -.0414975    .0067178
         LD. |   .2078306   .0753515     2.76   0.006       .05911    .3565511
        L2D. |  -.0625786   .0756253    -0.83   0.409    -.2118397    .0866825
       _cons |   .2599156    .460084     0.56   0.573    -.6481483     1.16798
------------------------------------------------------------------------------

Test statistic: -1.42


Critical Values:

This t-stat is well-short of the 10% significance level which is -3.0462
```

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     184
-------------+------------------------------           F(  3,   180) =    0.35
       Model |  22.2973141     3  7.43243804           Prob > F      =  0.7919
    Residual |  3863.43638   180  21.4635355           R-squared     =  0.0057
-------------+------------------------------           Adj R-squared = -0.0108
       Total |   3885.7337   183  21.2335175           Root MSE      =  4.6329

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0080857   .0090902    -0.89   0.375    -.0260227    .0098512
Fiscal_Rel~e |
         L1. |  -.0064585   .0372549    -0.17   0.863     -.079971     .067054
         D1. |  -.0041405   .1084371    -0.04   0.970     -.218112    .2098309
       _cons |   1.002522   .6490443     1.54   0.124    -.2781917    2.283237
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9143
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  8.697989  Chi-sq( 7)  P-value =  .2751

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7987537   4.978325     0.16   0.873    -9.024631    10.62214
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   180) =    0.52
            Prob > F =    0.5959

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance l.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     183
-------------+------------------------------           F(  3,   179) =    0.35
       Model |  22.8346729     3  7.61155762           Prob > F      =  0.7872
    Residual |  3862.68445   179  21.5792428           R-squared     =  0.0059
-------------+------------------------------           Adj R-squared = -0.0108
       Total |  3885.51913   182  21.3490062           Root MSE      =  4.6453

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0082664   .0091214    -0.91   0.366    -.0262657     .009733
Fiscal_Rel~e |
         L1. |  -.0064298   .0383732    -0.17   0.867    -.0821518    .0692923
         LD. |   .0022394   .1087289     0.02   0.984    -.2123159    .2167947
       _cons |   1.017584   .6550401     1.55   0.122    -.2750101    2.310178
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9144
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  8.645284  Chi-sq( 7)  P-value =  .2791

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7778229   4.985995     0.16   0.876    -9.061069    10.61671
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   179) =    0.53
            Prob > F =    0.5901

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance l.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     181
-------------+------------------------------           F(  3,   177) =    0.36
       Model |  23.2431674     3  7.74772245           Prob > F      =  0.7855
    Residual |  3861.83971   177  21.8183034           R-squared     =  0.0060
-------------+------------------------------           Adj R-squared = -0.0109
       Total |  3885.08287   180  21.5837937           Root MSE      =   4.671

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0083936   .0092352    -0.91   0.365     -.026619    .0098317
Fiscal_Rel~e |
         L1. |   -.006748   .0402292    -0.17   0.867    -.0861386    .0726426
        L2D. |    .005042   .1132033     0.04   0.965    -.2183598    .2284439
       _cons |   1.031902   .6633346     1.56   0.122    -.2771609    2.340964
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9138
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   8.53915  Chi-sq( 7)  P-value =  .2875

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8039449   5.148278     0.16   0.876    -9.355962    10.96385
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   177) =    0.53
            Prob > F =    0.5880

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance l.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     180
-------------+------------------------------           F(  3,   176) =    0.36
       Model |   23.833102     3  7.94436732           Prob > F      =  0.7804
    Residual |  3861.02801   176  21.9376591           R-squared     =  0.0061
-------------+------------------------------           Adj R-squared = -0.0108
       Total |  3884.86111   179  21.7031347           Root MSE      =  4.6838

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0085712   .0092804    -0.92   0.357    -.0268864    .0097439
Fiscal_Rel~e |
         L1. |  -.0063981   .0391061    -0.16   0.870    -.0835754    .0707791
        L3D. |   .0037554   .1168239     0.03   0.974    -.2268007    .2343115
       _cons |   1.047563   .6696839     1.56   0.120    -.2740816    2.369207
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9136
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  8.486522  Chi-sq( 7)  P-value =  .2917

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7464686   4.880148     0.15   0.879    -8.884671    10.37761
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   176) =    0.54
            Prob > F =    0.5820
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance l.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     179
-------------+------------------------------           F(  3,   175) =    0.37
       Model |  24.4520596     3  8.15068654           Prob > F      =  0.7751
    Residual |  3860.18481   175  22.0581989           R-squared     =  0.0063
-------------+------------------------------           Adj R-squared = -0.0107
       Total |  3884.63687   178  21.8238026           Root MSE      =  4.6966

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0087475   .0093325    -0.94   0.350    -.0271662    .0096713
Fiscal_Rel~e |
         L1. |  -.0061863   .0384755    -0.16   0.872     -.082122    .0697495
        L4D. |   .0023285   .1105345     0.02   0.983    -.2158238    .2204809
       _cons |   1.063548    .676204     1.57   0.118    -.2710164    2.398113
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9133
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  8.433936  Chi-sq( 7)  P-value =  .2959

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7072042    4.69049     0.15   0.880    -8.550006    9.964414
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   175) =    0.55
            Prob > F =    0.5755
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     178
-------------+------------------------------           F(  3,   174) =    0.38
       Model |  25.1331513     3  8.37771711           Prob > F      =  0.7692
    Residual |  3859.27696   174  22.1797526           R-squared     =  0.0065
-------------+------------------------------           Adj R-squared = -0.0107
       Total |  3884.41011   177  21.9458198           Root MSE      =  4.7095

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0088959   .0094179    -0.94   0.346    -.0274839    .0096922
Fiscal_Rel~e |
         L1. |   -.006566   .0402074    -0.16   0.870    -.0859229    .0727909
        L5D. |   .0048905   .1206915     0.04   0.968    -.2333173    .2430983
       _cons |   1.079335   .6830455     1.58   0.116     -.268786    2.427456
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.012               1                   0.9126
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  8.381434  Chi-sq( 7)  P-value =  .3002

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7380942   4.826563     0.15   0.879    -8.788053    10.26424
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   174) =    0.57
            Prob > F =    0.5685

.
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -541.697   Log-Lik Full Model:           -541.167
D(180):                       1082.335   LR(3):                           1.059
                                         Prob > LR:                       0.787
R2:                              0.006   Adjusted R2:                    -0.011
AIC:                             5.926   AIC*n:                        1090.335
BIC:                           143.646   BIC':                           14.586
BIC used by Stata:            1103.194   AIC used by Stata:            1090.335

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -536.793   Log-Lik Full Model:           -536.260
D(177):                       1072.520   LR(4):                           1.066
                                         Prob > LR:                       0.900
R2:                              0.006   Adjusted R2:                    -0.017
AIC:                             5.948   AIC*n:                        1082.520
BIC:                           151.411   BIC':                           19.750
BIC used by Stata:            1098.540   AIC used by Stata:            1082.520

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -531.879   Log-Lik Full Model:           -531.343
D(174):                       1062.685   LR(5):                           1.072
                                         Prob > LR:                       0.957
R2:                              0.006   Adjusted R2:                    -0.023
AIC:                             5.970   AIC*n:                        1074.685
BIC:                           159.111   BIC':                           24.893
BIC used by Stata:            1093.843   AIC used by Stata:            1074.685

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -526.953   Log-Lik Full Model:           -526.414
D(171):                       1052.827   LR(6):                           1.079
                                         Prob > LR:                       0.982
R2:                              0.006   Adjusted R2:                    -0.029
AIC:                             5.993   AIC*n:                        1066.827
BIC:                           166.742   BIC':                           30.012
BIC used by Stata:            1089.100   AIC used by Stata:            1066.827

(Indices saved in matrix fs_mod1)

.
```

WE NOW TRUNCATE THE TIME DIMENSION TO WHERE WE HAVE VALUES FOR PER CAPITA GDP AND RERUN AGAIN AND FIND THE BEST MODEL

```
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -504.647   Log-Lik Full Model:           -503.915
D(165):                       1007.830   LR(3):                           1.463
                                         Prob > LR:                       0.691
R2:                              0.009   Adjusted R2:                    -0.009
AIC:                             6.011   AIC*n:                        1015.830
BIC:                           161.397   BIC':                           13.927
BIC used by Stata:            1028.350   AIC used by Stata:            1015.830

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -502.153   Log-Lik Full Model:           -501.431
D(163):                       1002.862   LR(4):                           1.445
                                         Prob > LR:                       0.836
R2:                              0.009   Adjusted R2:                    -0.016
AIC:                             6.029   AIC*n:                        1012.862
BIC:                           167.656   BIC':                           19.051
BIC used by Stata:            1028.482   AIC used by Stata:            1012.862

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance if GDP_Per_Cap_H
> aber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -499.657   Log-Lik Full Model:           -498.945
D(161):                        997.889   LR(5):                           1.425
                                         Prob > LR:                       0.922
R2:                              0.008   Adjusted R2:                    -0.022
AIC:                             6.047   AIC*n:                        1009.889
BIC:                           173.892   BIC':                           24.164
BIC used by Stata:            1028.597   AIC used by Stata:            1009.889

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

      Source |       SS       df       MS              Number of obs =     169
-------------+------------------------------           F(  3,   165) =    0.48
       Model |   33.464012     3  11.1546707           Prob > F      =  0.6979
    Residual |  3848.78451   165  23.3259667           R-squared     =  0.0086
-------------+------------------------------           Adj R-squared = -0.0094
       Total |  3882.24852   168  23.1086221           Root MSE      =  4.8297

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0109099   .0101242    -1.08   0.283    -.0308995    .0090797
Fiscal_Rel~e |
         L1. |  -.0060304   .0388414    -0.16   0.877    -.0827206    .0706598
         D1. |  -.0038661   .1130444    -0.03   0.973    -.2270662     .219334
       _cons |   1.272081   .7572917     1.68   0.095    -.2231499    2.767313

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.014               1                   0.9070
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  7.912585  Chi-sq( 7)  P-value =  .3404

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5527466   3.753848     0.15   0.883    -6.859022    7.964516
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   165) =    0.72
            Prob > F =    0.4897

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE d.Fiscal_Reliance d.log_gdp_
> per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =     168
-------------+------------------------------           F(  9,   158) =    0.91
       Model |  192.157269     9  21.3508077           Prob > F      =  0.5144
    Residual |  3689.83678   158  23.3533973           R-squared     =  0.0495
-------------+------------------------------           Adj R-squared = -0.0046
       Total |  3881.99405   167  23.2454733           Root MSE      =  4.8325

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0498107     .02887    -1.73   0.086    -.1068316    .0072103
Fiscal_Rel~e |
         L1. |  -.0160523    .052967    -0.30   0.762     -.120667    .0885624
log_gdp_pe~2 |
         L1. |  -.9689699   1.231784    -0.79   0.433    -3.401857    1.463918
REGION_DEM~E |
         L1. |   .0619344   .0714654     0.87   0.387    -.0792164    .2030852
WORLD_DEM_~E |
         L1. |    .054692   .1172204     0.47   0.641     -.176829    .2862131
Fiscal_Rel~e |
         D1. |  -.0141389   .1151317    -0.12   0.902    -.2415346    .2132567
log_gdp_pe~2 |
         D1. |   -7.50539   11.32993    -0.66   0.509    -29.88305    14.87227
REGION_DEM~E |
         D1. |   .3798754   .2102111     1.81   0.073     -.035311    .7950617
WORLD_DEM_~E |
         D1. |  -.1273309   .4078678    -0.31   0.755    -.9329073    .6782455
       _cons |   7.465052   8.390253     0.89   0.375     -9.10647    24.03657
------------------------------------------------------------------------------

.
. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.108               1                   0.7427
---------------------------------------------------------------------------
                        H0: no serial correlation

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   158) =    1.49
            Prob > F =    0.2287

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3222667   1.042006     0.31   0.758     -1.73579    2.380324
------------------------------------------------------------------------------

. whitetst

White's general test statistic :  49.31169  Chi-sq(52)  P-value =  .5803
```

```
. test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,   158) =    0.83
            Prob > F =    0.4774

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,   158) =    1.78
            Prob > F =    0.1528

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -502.153   Log-Lik Full Model:           -497.889
D(158):                        995.778   LR(9):                           8.529
                                         Prob > LR:                       0.482
R2:                              0.049   Adjusted R2:                    -0.005
AIC:                             6.046   AIC*n:                        1015.778
BIC:                           186.192   BIC':                           37.587
BIC used by Stata:            1047.018   AIC used by Stata:            1015.778

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE OMAN TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

OMAN'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       205

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.971            -4.005            -3.436            -3.136
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6172

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0369603   .0187527    -1.97   0.050    -.0739376    .0000169
         LD. |   .0167993   .0704538     0.24   0.812     -.122124    .1557225
      _trend |  -.0036497    .002478    -1.47   0.142    -.0085359    .0012365
       _cons |   .9112575   .5210271     1.75   0.082    -.1161228    1.938638
------------------------------------------------------------------------------

dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       205

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.310            -3.475            -2.883            -2.573
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6244

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0173851   .0132678    -1.31   0.192    -.0435462     .008776
         LD. |   .0078809   .0703959     0.11   0.911    -.1309242     .146686
       _cons |   .2242531   .2328316     0.96   0.337     -.234839    .6833451
------------------------------------------------------------------------------

.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       204

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -10.017            -4.005            -3.436            -3.136
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.002302   .1000584   -10.02   0.000    -1.199607   -.8049976
         LD. |   .0011532   .0707113     0.02   0.987     -.138282    .1405885
      _trend |  -.0001842   .0017825    -0.10   0.918    -.0036991    .0033306
       _cons |  -.0300647   .2122614    -0.14   0.888    -.4486222    .3884927
------------------------------------------------------------------------------

.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       204

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -10.041            -3.475            -2.883            -2.573
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.002183   .0998052   -10.04   0.000    -1.198983   -.8053838
         LD. |   .0010917   .0705345     0.02   0.988    -.1379908    .1401742
       _cons |  -.0491266   .1048165    -0.47   0.640    -.2558076    .1575543
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       197

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.772            -4.008            -3.437            -3.137
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.7180

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0295714   .0166865    -1.77   0.078    -.0624826    .0033399
         LD. |   .3433188   .0729697     4.70   0.000     .1993983    .4872393
      _trend |   .0155598   .0082854     1.88   0.062    -.0007817    .0319013
       _cons |  -.8798444   .8081603    -1.09   0.278    -2.473804    .7141158
------------------------------------------------------------------------------

.
.
.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       197

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.718            -3.478            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8420

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0091455   .0127368    -0.72   0.474    -.0342658    .0159748
         LD. |   .3418608   .0734392     4.66   0.000      .197019    .4867026
       _cons |    .438102   .4033697     1.09   0.279    -.3574511    1.233655
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       194

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.996            -4.009            -3.437            -3.137
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.6035

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -.5207819   .2608893    -2.00   0.047    -1.035393   -.0061704
         LD. |  -.1428626    .242626    -0.59   0.557    -.6214493     .335724
      _trend |   .0064061   .0064908     0.99   0.325    -.0063973    .0192094
       _cons |    -.30212   .7484567    -0.40   0.687    -1.778472    1.174232
------------------------------------------------------------------------------

.
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       194

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.043            -3.479            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.2682

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -.5323022   .2606103    -2.04   0.042    -1.046346   -.0182583
         LD. |  -.1274729    .242108    -0.53   0.599    -.6050217    .3500758
       _cons |   .3358397   .3772692     0.89   0.374    -.4083094    1.079989
------------------------------------------------------------------------------
```

```
dfuller D.Fiscal_Reliance, regress

Dickey-Fuller test for unit root                   Number of obs   =       197

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              -9.094            -3.478            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -.6635231   .0729646    -9.09   0.000    -.8074243    -.519622
       _cons |   .3244436   .3705529     0.88   0.382    -.4063624     1.05525
------------------------------------------------------------------------------
```

OMAN'S CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       204
maximum lag: 1                                      F(  1,   202)  =    421.37
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |  -.1954111   .0095196   -20.53   0.000    -.2141816   -.1766406
       _cons |   18.81298   .5083651    37.01   0.000      17.8106    19.81536
------------------------------------------------------------------------------

predict residual, res
(3 missing values generated)


dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       197

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.087            -4.008            -3.437            -3.137
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1095

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0944534    .030601    -3.09   0.002    -.1548087   -.0340982
         LD. |   .1447011   .0736929     1.96   0.051    -.0006458     .290048
      _trend |  -.0009581   .0023072    -0.42   0.678    -.0055087    .0035924
       _cons |   .1241166    .266492     0.47   0.642     -.401494    .6497272
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       197

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.113            -3.478            -2.884            -2.574
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0256

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0906149   .0291093    -3.11   0.002    -.1480262   -.0332035
         LD. |   .1418181   .0732085     1.94   0.054    -.0025688    .2862049
       _cons |   .0272849   .1287567     0.21   0.832    -.2266578    .2812277
------------------------------------------------------------------------------
```

-3.11 test statistic versus -3.0462 ten percent level with no trend for a pair of integrated series. Significant at the 10 percent level. Not significant at the 5 percent level though, because the critical value is -3.3377. However, we can reject the hypothesis of no co-integration.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      42
-------------+------------------------------           F(  3,    38) =    0.30
       Model |  1.08786339     3  .362621129           Prob > F      =  0.8279
    Residual |  46.5311842    38  1.22450485           R-squared     =  0.0228
-------------+------------------------------           Adj R-squared = -0.0543
       Total |  47.6190476    41  1.16144019           Root MSE      =  1.1066

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0256556   .0462753    -0.55   0.583     -.119335    .0680238
Fiscal_Rel~e |
         L1. |  -.0078278   .0126912    -0.62   0.541    -.0335198    .0178643
         D1. |   -.013561   .0186336    -0.73   0.471    -.0512828    .0241608
       _cons |   2.946117   4.525911     0.65   0.519     -6.21611    12.10834
------------------------------------------------------------------------------


nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.354932   1.561595    -0.23   0.820    -3.434619    2.724755


test   l.polity_s l.Fiscal_Reliance

( 1)   L.polity_s = 0
( 2)   L.Fiscal_Reliance = 0

       F(  2,   196) =    1.07
       Prob > F =    0.3437


whitetst

White's general test statistic :  .1801822  Chi-sq( 9)  P-value =      1

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.003               1                   0.9535
---------------------------------------------------------------------------
                        H0: no serial correlation
```

1 lag of differenced Fiscal Reliance

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     199
-------------+------------------------------           F(  3,   195) =    0.76
       Model |  5.19880414     3  1.73293471           Prob > F      =  0.5175
    Residual |  444.298683   195  2.27845479           R-squared     =  0.0116
-------------+------------------------------           Adj R-squared = -0.0036
       Total |  449.497487   198  2.27018933           Root MSE      =  1.5095

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0088562   .0237542    -0.37   0.710    -.0557043    .0379919
Fiscal_Rel~e |
         L1. |   .0034936   .0058708     0.60   0.552    -.0080848    .0150721
         LD. |  -.0079284   .0200803    -0.39   0.693    -.0475308     .031674
       _cons |   .0492587   .4617675     0.11   0.915     -.861441    .9599585
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3944832   1.633936    -0.24   0.809    -3.616938    2.827972
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   195) =    1.13
            Prob > F =    0.3245

whitetst

White's general test statistic :  .1629859  Chi-sq( 9)  P-value =      1

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.003               1                   0.9582
---------------------------------------------------------------------------
                        H0: no serial correlation
```

2 lags of differenced Fiscal Reliance

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     196
-------------+------------------------------           F(  3,   192) =    0.76
       Model |  5.26997643     3  1.75665881           Prob > F      =  0.5182
    Residual |  444.219819   192  2.31364489           R-squared     =  0.0117
-------------+------------------------------           Adj R-squared = -0.0037
       Total |  449.489796   195  2.30507588           Root MSE      =  1.5211

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0084552   .0239015    -0.35   0.724    -.0555984     .038688
Fiscal_Rel~e |
         L1. |   .0035357   .0060152     0.59   0.557    -.0083287    .0154002
        L2D. |   .0054341   .0216473     0.25   0.802    -.0372629    .0481312
       _cons |   .0404972   .4645724     0.09   0.931    -.8758237    .9568182
------------------------------------------------------------------------------


nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4181746   1.794255    -0.23   0.816    -3.957157    3.120808
------------------------------------------------------------------------------


test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   192) =    1.03
            Prob > F =    0.3605


whitetst

White's general test statistic :  .3172785  Chi-sq( 9)  P-value =      1


bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.004               1                   0.9465
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     195
-------------+------------------------------           F(  3,   191) =    0.79
       Model |  5.47565671     3  1.8252189            Prob > F      =  0.5035
    Residual |  444.011523   191  2.32466766           R-squared     =  0.0122
-------------+------------------------------           Adj R-squared = -0.0033
       Total |  449.487179   194  2.31694422           Root MSE      =  1.5247

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0083058   .0239697    -0.35   0.729     -.055585    .0389734
Fiscal_Rel~e |
         L1. |   .0038225   .0059997     0.64   0.525    -.0080117    .0156568
        L3D. |  -.0168738   .0436217    -0.39   0.699    -.1029159    .0691683
       _cons |   .0359606   .4658148     0.08   0.939    -.8828415    .9547626
------------------------------------------------------------------------------


nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4602252   1.947475    -0.24   0.813    -4.301545    3.381095
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   191) =    1.14
            Prob > F =    0.3225

. whitetst

White's general test statistic :  .1580875  Chi-sq( 9)  P-value =      1

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.003               1                   0.9583
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     194
-------------+------------------------------           F(  3,   190) =    0.75
       Model |  5.24101113     3  1.74700371           Prob > F      =  0.5252
    Residual |  444.243525   190  2.33812382           R-squared     =  0.0117
-------------+------------------------------           Adj R-squared = -0.0039
       Total |  449.484536   193  2.32893542           Root MSE      =  1.5291

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0086389   .0240543    -0.36   0.720    -.0560867    .0388088
Fiscal_Rel~e |
         L1. |   .0037584   .0060201     0.62   0.533    -.0081163    .0156332
        L4D. |   -.004999   .0218442    -0.23   0.819    -.0480874    .0380893
       _cons |   .0419217   .4673445     0.09   0.929    -.8799285    .9637718
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4350595   1.809389    -0.24   0.810    -4.004131    3.134012
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   190) =    1.12
            Prob > F =    0.3282

whitetst

White's general test statistic :  .5496717  Chi-sq( 9)  P-value =      1

bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.007               1                   0.9333
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     193
-------------+------------------------------           F(  3,   189) =    0.86
       Model |  6.06333315     3  2.02111105           Prob > F      =  0.4621
    Residual |  443.418532   189  2.3461298            R-squared     =  0.0135
-------------+------------------------------           Adj R-squared = -0.0022
       Total |  449.481865   192  2.34105138           Root MSE      =  1.5317

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0086583   .0241077    -0.36   0.720    -.0562131    .0388964
Fiscal_Rel~e |
         L1. |   .0038167   .0059948     0.64   0.525    -.0080086    .0156421
        L5D. |  -.0279293   .0440403    -0.63   0.527     -.114803    .0589444
       _cons |   .0413467   .4682724     0.09   0.930    -.8823652    .9650586
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4408157      1.822    -0.24   0.809    -4.034883    3.153252
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   189) =    1.16
            Prob > F =    0.3148

whitetst

White's general test statistic :  .2647612  Chi-sq( 9)  P-value =      1

bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.006               1                   0.9376
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

FINDING THE BEST LAG STRUCTURE

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -364.770   Log-Lik Full Model:          -363.679
D(196):                        727.358   LR(3):                          2.181
                                         Prob > LR:                      0.536
R2:                              0.011   Adjusted R2:                   -0.004
AIC:                             3.677   AIC*n:                        735.358
BIC:                          -311.112   BIC':                          13.714
BIC used by Stata:             748.551   AIC used by Stata:            735.358

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -360.785   Log-Lik Full Model:          -359.600
D(192):                        719.200   LR(4):                          2.370
                                         Prob > LR:                      0.668
R2:                              0.012   Adjusted R2:                   -0.009
AIC:                             3.702   AIC*n:                        729.200
BIC:                          -295.175   BIC':                          18.763
BIC used by Stata:             745.616   AIC used by Stata:            729.200

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -356.778   Log-Lik Full Model:          -354.181
D(188):                        708.362   LR(5):                          5.194
                                         Prob > LR:                      0.393
R2:                              0.026   Adjusted R2:                    0.001
AIC:                             3.713   AIC*n:                        720.362
BIC:                          -281.996   BIC':                          21.146
BIC used by Stata:             739.969   AIC used by Stata:            720.362

(Indices saved in matrix fs_mod1)
```

LAGS CHOSEN WITH THE DATA TRUNCATED TO 1950, BECAUSE THE COVERAGE FOR ONE OF THE CONTROL VARIABLES, GDP PER CAPITA, ONLY BEGINS IN 1950.

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -127.779   Log-Lik Full Model:           -125.066
D(47):                         250.131   LR(3):                           5.426
                                         Prob > LR:                       0.143
R2:                              0.101   Adjusted R2:                     0.044
AIC:                             5.061   AIC*n:                         258.131
BIC:                            65.336   BIC':                            6.369
BIC used by Stata:             265.859   AIC used by Stata:             258.131

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -123.744   Log-Lik Full Model:           -121.052
D(44):                         242.105   LR(4):                           5.383
                                         Prob > LR:                       0.250
R2:                              0.104   Adjusted R2:                     0.023
AIC:                             5.145   AIC*n:                         252.105
BIC:                            70.865   BIC':                           10.185
BIC used by Stata:             261.564   AIC used by Stata:             252.105

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance if GDP_Per_Cap_Haber_Men_2 != .

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -119.668   Log-Lik Full Model:           -116.612
D(41):                         233.224   LR(5):                           6.111
                                         Prob > LR:                       0.296
R2:                              0.122   Adjusted R2:                     0.015
AIC:                             5.218   AIC*n:                         245.224
BIC:                            75.368   BIC':                           13.139
BIC used by Stata:             256.325   AIC used by Stata:             245.224

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 != .

      Source |       SS       df       MS              Number of obs =      51
-------------+------------------------------           F(  3,    47) =    1.76
       Model |  45.2213984     3  15.0737995           Prob > F      =  0.1680
    Residual |  402.817817    47  8.57059186           R-squared     =  0.1009
-------------+------------------------------           Adj R-squared =  0.0435
       Total |  448.039216    50  8.96078431           Root MSE      =  2.9276

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1052655   .0649249    -1.62   0.112    -.2358776    .0253465
Fiscal_Rel~e |
         L1. |   .0084692   .0120081     0.71   0.484    -.0156881    .0326264
         D1. |  -.0005906   .0401468    -0.01   0.988    -.0813555    .0801743
       _cons |  -.1116887   .9419641    -0.12   0.906    -2.006676    1.783299
------------------------------------------------------------------------------

whitetst

White's general test statistic :  6.404897  Chi-sq( 9)  P-value =  .6988

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.014               1                   0.9056
---------------------------------------------------------------------------
                        H0: no serial correlation

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0804551   .1437102    -0.56   0.578    -.3695628    .2086525
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    47) =    2.64
            Prob > F =    0.0821
```

DISTRIBUTED LAGS WITH CONTROL VARIABLES (No Civil Wars observed during Omanian history, so Civil War is NOT included)

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.Civil_War_Gledistsch d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      50
-------------+------------------------------           F(  9,    40) =    0.82
       Model |  69.5483859     9  7.72759843           Prob > F      =  0.6041
    Residual |  378.451614    40  9.46129035           R-squared     =  0.1552
-------------+------------------------------           Adj R-squared = -0.0348
       Total |         448    49  9.14285714           Root MSE      =  3.0759

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1935559   .1199845    -1.61   0.115    -.4360536    .0489419
Fiscal_Rel~e |
         L1. |   .0323596   .0522685     0.62   0.539     -.073279    .1379982
log_gdp_pe~2 |
         L1. |  -1.389184   2.771748    -0.50   0.619    -6.991095    4.212727
REGION_DEM~E |
         L1. |   .1347656   .2697306     0.50   0.620    -.4103803    .6799116
WORLD_DEM_~E |
         L1. |   .1500394   .1650168     0.91   0.369    -.1834719    .4835508
Civil_War_~h |
         L1. |  (dropped)
Fiscal_Rel~e |
         D1. |   .0163504   .0678186     0.24   0.811    -.1207162     .153417
log_gdp_pe~2 |
         D1. |  -1.679264   6.806258    -0.25   0.806    -15.43522     12.0767
REGION_DEM~E |
         D1. |   .0578477   .2405533     0.24   0.811    -.4283286     .544024
WORLD_DEM_~E |
         D1. |  -.1584867   .3795035    -0.42   0.678    -.9254919    .6085185
       _cons |   5.726373   17.41162     0.33   0.744    -29.46382    40.91657
------------------------------------------------------------------------------

test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0
       Constraint 4 dropped

       F(  3,    40) =    0.50
            Prob > F =    0.6854


test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    40) =    0.11
            Prob > F =    0.9543
```

```
. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1671849   .2327707    -0.72   0.477    -.6376321    .3032623
------------------------------------------------------------------------------

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -125.766   Log-Lik Full Model:           -121.549
D(39):                         243.097   LR(9):                           8.435
                                         Prob > LR:                       0.491
R2:                              0.155   Adjusted R2:                    -0.035
AIC:                             5.302   AIC*n:                         265.097
BIC:                            90.528   BIC':                           26.773
BIC used by Stata:             282.217   AIC used by Stata:             263.097

(Indices saved in matrix fs_mod1)

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    40) =    1.34
            Prob > F =    0.2739

. whitetst

White's general test statistic :        50  Chi-sq(49)  P-value =  .4334

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.043               1                   0.8351
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE TRINIDAD AND TOBAGO TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

TRINIDAD AND TOBAGO UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        43

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.517            -4.214            -3.528            -3.197
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3194

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2551487   .1013626    -2.52   0.016    -.4601739   -.0501235
         LD. |   .0481517   .1547194     0.31   0.757    -.2647978    .3611011
      _trend |   .0818115    .031587     2.59   0.013     .0179208    .1457021
       _cons |    22.2228   8.817831     2.52   0.016     4.387052    40.05855
```

```
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        43

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.333            -3.628            -2.950            -2.608
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9206

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0144161   .0432308    -0.33   0.741    -.1017889    .0729566
         LD. |  -.0370014   .1616139    -0.23   0.820    -.3636354    .2896325
       _cons |   1.590581    4.04197     0.39   0.696    -6.578544    9.759707
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              -4.778            -4.224            -3.532            -3.199
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0005

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.132566    .237029    -4.78   0.000    -1.612406   -.6527261
         LD. |   .0672332   .1625737     0.41   0.682    -.2618799    .3963464
      _trend |   .0095011    .014352     0.66   0.512    -.0195531    .0385553
       _cons |   .0558847   .3611951     0.15   0.878    -.6753166     .787086
```

```
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        42

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              -4.770            -3.634            -2.952            -2.610
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0001

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.105263   .2317261    -4.77   0.000    -1.573973   -.6365528
         LD. |   .0526316   .1599062     0.33   0.744    -.2708093    .3760724
       _cons |   .2631579   .1787806     1.47   0.149      -.09846    .6247758
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.291            -4.233            -3.536            -3.202
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.4389

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.2418537   .1055673    -2.29   0.028    -.4557534    -.027954
         LD. |    .209428   .1632899     1.28   0.208    -.1214287    .5402848
      _trend |  -.0280478   .1279284    -0.22   0.828    -.2872553    .2311597
       _cons |    10.3882    5.49318     1.89   0.066    -.7420423    21.51844
```

```
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.319            -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1660

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.2376289   .1024854    -2.32   0.026    -.4450998    -.030158
         LD. |   .2069575   .1608473     1.29   0.206    -.1186608    .5325758
       _cons |   9.611517   4.145373     2.32   0.026     1.219647    18.00339
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        40

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.869            -4.242            -3.540            -3.204
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0004

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.099941   .2259013    -4.87   0.000     -1.55809   -.6417919
         LD. |   .1994008   .1665374     1.20   0.239    -.1383528    .5371544
      _trend |   .0163351   .1387341     0.12   0.907    -.2650308     .297701
       _cons |   .3343047   3.386744     0.10   0.922     -6.53433    7.202939
```

```
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        40

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.940            -3.648            -2.958            -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.100607   .2228007    -4.94   0.000    -1.552044   -.6491698
         LD. |   .2000946   .1642003     1.22   0.231    -.1326068     .532796
       _cons |   .6856098   1.580985     0.43   0.667     -2.51777     3.88899
```

TRINIDAD AND TOBAGO CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        43
maximum lag: 1                                      F(  1,    41)  =      2.84
                                                    Prob > F       =    0.0995

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |  -.0784793   .0465629    -1.69   0.100    -.1725151    .0155565
       _cons |   96.83965    2.23441    43.34   0.000     92.32717    101.3521
------------------------------------------------------------------------------

predict residual, res
(2 missing values generated)
```

```
dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.324            -4.233            -3.536            -3.202
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0624

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.5122547   .1541088    -3.32   0.002    -.8245089   -.2000006
         LD. |   .1364602   .1620615     0.84   0.405    -.1919077    .4648281
      _trend |   .1572828   .0465446     3.38   0.002     .0629745     .251591
       _cons |  -3.240567   1.069389    -3.03   0.004    -5.407354    -1.07378
------------------------------------------------------------------------------
```

Critical Values:

This t-stat is just shy of the 10% significance level which is -3.496 for two variables being co-integrated with a time trend included in the equation.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      42
-------------+------------------------------           F(  3,    38) =    0.30
       Model |  1.08786339     3  .362621129           Prob > F      =  0.8279
    Residual |  46.5311842    38  1.22450485           R-squared     =  0.0228
-------------+------------------------------           Adj R-squared = -0.0543
       Total |  47.6190476    41  1.16144019           Root MSE      =  1.1066

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0256556   .0462753    -0.55   0.583     -.119335    .0680238
Fiscal_Rel~e |
         L1. |  -.0078278   .0126912    -0.62   0.541    -.0335198    .0178643
         D1. |   -.013561   .0186336    -0.73   0.471    -.0512828    .0241608
       _cons |   2.946117   4.525911     0.65   0.519     -6.21611    12.10834
------------------------------------------------------------------------------


nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3051092   .6013371     0.51   0.615    -.9122341    1.522452
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    38) =    0.26
            Prob > F =    0.7746


. whitetst

White's general test statistic :  5.579512  Chi-sq( 9)  P-value =  .7812

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.151               1                   0.6973
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      41
-------------+------------------------------           F(  3,    37) =    0.20
       Model |  .774881782     3  .258293927           Prob > F      =  0.8928
    Residual |  46.7860938    37  1.26448902           R-squared     =  0.0163
-------------+------------------------------           Adj R-squared = -0.0635
       Total |  47.5609756    40  1.18902439           Root MSE      =  1.1245

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0243669   .0486195    -0.50   0.619    -.1228794    .0741456
Fiscal_Rel~e |
         L1. |  -.0036229    .013378    -0.27   0.788    -.0307294    .0234836
         LD. |  -.0086562   .0195328    -0.44   0.660    -.0482333     .030921
       _cons |   2.670367   4.788413     0.56   0.580    -7.031878    12.37261
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1486825   .5083654     0.29   0.772    -.8813637    1.178729
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    37) =    0.13
            Prob > F =    0.8798

whitetst

White's general test statistic :   6.32674  Chi-sq( 9)  P-value =  .7068

bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.136               1                   0.7125
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      40
-------------+------------------------------           F(  3,    36) =    0.28
       Model |  1.08701789     3  .362339297           Prob > F      =  0.8387
    Residual |  46.4129821    36   1.2892495           R-squared     =  0.0229
-------------+------------------------------           Adj R-squared = -0.0585
       Total |        47.5    39  1.21794872           Root MSE      =  1.1355

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0281904   .0497542    -0.57   0.575    -.1290965    .0727158
Fiscal_Rel~e |
         L1. |   -.003548   .0137782    -0.26   0.798    -.0314915    .0243954
        L2D. |  -.0117861   .0200879    -0.59   0.561    -.0525262     .028954
       _cons |   3.034056   4.911388     0.62   0.541    -6.926701    12.99481
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1258602   .4471851     0.28   0.780    -.7810733    1.032794
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    36) =    0.16
            Prob > F =    0.8519

. whitetst

White's general test statistic :   7.13284  Chi-sq( 9)  P-value =  .6233

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.125               1                   0.7240
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      39
-------------+------------------------------           F(  3,    35) =    0.24
       Model |  .966620159     3   .32220672           Prob > F      =  0.8660
    Residual |  46.4692773    35  1.32769364           R-squared     =  0.0204
-------------+------------------------------           Adj R-squared = -0.0636
       Total |  47.4358974    38  1.24831309           Root MSE      =  1.1523

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0357114   .0513711    -0.70   0.492    -.1400003    .0685775
Fiscal_Rel~e |
         L1. |  -.0064585    .013576    -0.48   0.637    -.0340193    .0211022
        L3D. |  -.0070134    .019459    -0.36   0.721    -.0465173    .0324905
       _cons |    3.86241   5.069305     0.76   0.451    -6.428827    14.15365
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    .180853   .3612421     0.50   0.620    -.5525074    .9142135
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    35) =    0.26
            Prob > F =    0.7702

. whitetst

White's general test statistic :  6.040994  Chi-sq( 9)  P-value =  .7358

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.076               1                   0.7833
---------------------------------------------------------------------------
                        H0: no serial correlation

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      38
-------------+------------------------------           F(  3,    34) =    0.26
       Model |  1.04281775     3  .347605915           Prob > F      =  0.8571
    Residual |  46.3256033    34  1.36251774           R-squared     =  0.0220
-------------+------------------------------           Adj R-squared = -0.0643
       Total |  47.3684211    37   1.2802276           Root MSE      =  1.1673

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0415801   .0537706    -0.77   0.445    -.1508551     .067695
Fiscal_Rel~e |
         L1. |  -.0092411   .0138249    -0.67   0.508    -.0373368    .0188545
        L4D. |   .0034512   .0199553     0.17   0.864    -.0371028    .0440053
       _cons |   4.534843   5.317479     0.85   0.400    -6.271575    15.34126
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    .222249   .3317984     0.67   0.507    -.4520465    .8965445
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    34) =    0.37
            Prob > F =    0.6955

. whitetst

White's general test statistic :  6.418778  Chi-sq( 9)  P-value =  .6974

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.052               1                   0.8194
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      37
-------------+------------------------------           F(  3,    33) =    0.40
       Model |  1.64996837     3  .549989457           Prob > F      =  0.7556
    Residual |  45.6473289    33  1.38325239           R-squared     =  0.0349
-------------+------------------------------           Adj R-squared = -0.0529
       Total |  47.2972973    36  1.31381381           Root MSE      =  1.1761

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0501761   .0556939    -0.90   0.374    -.1634863     .063134
Fiscal_Rel~e |
         L1. |  -.0094306   .0141688    -0.67   0.510    -.0382572     .019396
        L5D. |  -.0111908   .0200629    -0.56   0.581    -.0520091    .0296274
       _cons |   5.364186   5.527398     0.97   0.339    -5.881389    16.60976
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1879497   .2621636     0.72   0.478    -.3454262    .7213257
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    33) =    0.45
            Prob > F =    0.6445

whitetst

White's general test statistic :  6.261029  Chi-sq( 9)  P-value =  .7135

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.054               1                   0.8169
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
NO lags of Fiscal Reliance chosen in the distributed lag model

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -62.232   Log-Lik Full Model:            -61.747
D(38):                         123.494   LR(3):                           0.971
                                         Prob > LR:                       0.808
R2:                              0.023   Adjusted R2:                    -0.054
AIC:                             3.131   AIC*n:                         131.494
BIC:                           -18.538   BIC':                           10.242
BIC used by Stata:             138.445   AIC used by Stata:             131.494

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -61.220   Log-Lik Full Model:            -60.637
D(36):                         121.274   LR(4):                           1.165
                                         Prob > LR:                       0.884
R2:                              0.028   Adjusted R2:                    -0.080
AIC:                             3.202   AIC*n:                         131.274
BIC:                           -12.414   BIC':                           13.690
BIC used by Stata:             139.842   AIC used by Stata:             131.274

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -60.195   Log-Lik Full Model:            -59.304
D(34):                         118.609   LR(5):                           1.780
                                         Prob > LR:                       0.879
R2:                              0.044   Adjusted R2:                    -0.097
AIC:                             3.265   AIC*n:                         130.609
BIC:                            -6.813   BIC':                           16.664
BIC used by Stata:             140.742   AIC used by Stata:             130.609

(Indices saved in matrix fs_mod1)
```

Model chosen (no lags) with the control variables added

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE  L.Civil_War_Gledistsch d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      42
-------------+------------------------------           F(  9,    32) =    1.18
       Model |   11.839099     9  1.31545544           Prob > F      =  0.3426
    Residual |  35.7799486    32   1.1181234           R-squared     =  0.2486
-------------+------------------------------           Adj R-squared =  0.0373
       Total |  47.6190476    41  1.16144019           Root MSE      =  1.0574

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2285644   .1201591    -1.90   0.066    -.4733205    .0161916
Fiscal_Rel~e |
         L1. |   -.006681   .0162182    -0.41   0.683    -.0397164    .0263545
log_gdp_pe~2 |
         L1. |   .4909146   1.263907     0.39   0.700     -2.08358    3.065409
REGION_DEM~E |
         L1. |   .0091514   .0386687     0.24   0.814    -.0696141    .0879169
WORLD_DEM_~E |
         L1. |    .125398   .0819389     1.53   0.136     -.041506    .2923021
Civil_War_~h |
         L1. |  (dropped)
Fiscal_Rel~e |
         D1. |   -.006316   .0203933    -0.31   0.759    -.0478558    .0352238
log_gdp_pe~2 |
         D1. |  -2.869937   2.516258    -1.14   0.263    -7.995387    2.255514
REGION_DEM~E |
         D1. |   .0061098   .0343456     0.18   0.860    -.0638498    .0760694
WORLD_DEM_~E |
         D1. |  -.1753439   .1581037    -1.11   0.276    -.4973907    .1467028
       _cons |   13.08036   15.84589     0.83   0.415    -19.19665    45.35737
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0292302   .0710256     0.41   0.683    -.1154443    .1739046
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    32) =    1.83
            Prob > F =    0.1764

. whitetst

White's general test statistic :        42  Chi-sq(41)  P-value =  .4274

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.658               1                   0.4173
---------------------------------------------------------------------------
                        H0: no serial correlation
```

```
test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0
       Constraint 4 dropped

       F(  3,    32) =    2.10
            Prob > F =    0.1196

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    32) =    0.81
            Prob > F =    0.4958

.

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -62.232   Log-Lik Full Model:            -56.229
D(31):                         112.459   LR(9):                          12.005
                                         Prob > LR:                       0.213
R2:                              0.249   Adjusted R2:                     0.037
AIC:                             3.201   AIC*n:                         134.459
BIC:                            -3.409   BIC':                           21.634
BIC used by Stata:             149.836   AIC used by Stata:             132.459

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE VENEZUELA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

VENEZUELA'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       175

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.575            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8022

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0247212   .0156988    -1.57   0.117    -.0557097    .0062673
         LD. |   .0460327   .0765774     0.60   0.549     -.105126    .1971914
      _trend |   .0133244   .0091812     1.45   0.149    -.0047987    .0314475
       _cons |   .1406158   .6379482     0.22   0.826    -1.118652    1.399883
------------------------------------------------------------------------------


dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       175

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.745            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.8347

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0079344   .0106482    -0.75   0.457    -.0289524    .0130835
         LD. |   .0423878   .0767819     0.55   0.582    -.1091684     .193944
       _cons |   .6110792    .551209     1.11   0.269    -.4769259    1.699084
------------------------------------------------------------------------------
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -8.848            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9480204   .1071467    -8.85   0.000     -1.15953    -.736511
         LD. |  -.0171928   .0770936    -0.22   0.824     -.169377    .1349913
      _trend |   .0025964    .006331     0.41   0.682     -.009901    .0150938
       _cons |   .0411461   .6427924     0.06   0.949    -1.227737    1.310029
```

```
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -8.862            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.9450642   .1066436    -8.86   0.000    -1.155572   -.7345567
         LD. |   -.018696   .0768189    -0.24   0.808    -.1703315    .1329396
       _cons |   .2699916   .3182923     0.85   0.397    -.3582965    .8982796
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.911            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1587

------------------------------------------------------------------------------
D.Fiscal_R~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         L1. |  -.1041977   .0357951    -2.91   0.004    -.1748579   -.0335375
         LD. |  -.1100895   .0758573    -1.45   0.149     -.259833     .039654
      _trend |   .0555909   .0192487     2.89   0.004     .0175937     .093588
       _cons |  -2.039192   1.144023    -1.78   0.076    -4.297513    .2191284
------------------------------------------------------------------------------

.
```

```
dfuller D.Fiscal_Reliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -13.643            -4.016            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.Fiscal_~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D.Fiscal_R~e |
         L1. |  -1.524118    .111714   -13.64   0.000    -1.744653   -1.303584
         LD. |   .3139027   .0735465     4.27   0.000     .1687145    .4590909
      _trend |   .0074859   .0089002     0.84   0.401    -.0100841    .0250559
       _cons |     -.0327   .8991486    -0.04   0.971     -1.80771     1.74231
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       173

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -13.629            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.518924   .1114472   -13.63   0.000    -1.738923   -1.298926
        LD2. |   .3116747   .0734355     4.24   0.000     .1667117    .4566376
       _cons |   .6240039   .4455464     1.40   0.163    -.2555122     1.50352
------------------------------------------------------------------------------

dfuller D.Fiscal_Reliance, regress lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       172

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.986            -3.486            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D2.          |
Fiscal_Rel~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |
         LD. |  -1.627462   .1629698    -9.99   0.000    -1.949194   -1.305729
        LD2. |    .398186   .1198494     3.32   0.001     .1615811     .634791
       L2D2. |   .0711215   .0777445     0.91   0.362    -.0823606    .2246037
       _cons |   .6667525   .4504047     1.48   0.141    -.2224298    1.555935
------------------------------------------------------------------------------

.
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by Engle-Granger from Engle and Yoo (1987, Table 3).

Polity and Fiscal Reliance

```
. newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =       176
maximum lag: 1                                      F(  1,   174)  =    249.51
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .8752691   .0554118    15.80   0.000     .7659034    .9846348
       _cons |   22.17824   1.508481    14.70   0.000     19.20097    25.15552
------------------------------------------------------------------------------

predict residual, res
(1 missing value generated)

. dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.489            -4.015            -3.440            -3.140
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3336

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0728451   .0292689    -2.49   0.014    -.1306225   -.0150677
         LD. |   .0063957   .0767243     0.08   0.934    -.1450594    .1578507
      _trend |   .0003879    .009939     0.04   0.969    -.0192318    .0200077
       _cons |   -.085144   1.011094    -0.08   0.933     -2.08106    1.910772
------------------------------------------------------------------------------
```

```
dfuller residual, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       174

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.497            -3.485            -2.885            -2.575
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1162

------------------------------------------------------------------------------
  D.residual |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |  -.0727943   .0291546    -2.50   0.013    -.1303435   -.0152452
         LD. |   .0063568   .0764935     0.08   0.934    -.1446363      .15735
       _cons |  -.0508134   .4972826    -0.10   0.919    -1.032416    .9307895
------------------------------------------------------------------------------

.
Test statistic: -2.50


Critical Values:


This t-stat is shy of the 10% significance level which is .
```

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     175
-------------+------------------------------           F(  3,   171) =    3.92
       Model |  190.543308     3  63.514436            Prob > F      =  0.0097
    Residual |  2767.17098   171  16.1822864           R-squared     =  0.0644
-------------+------------------------------           Adj R-squared =  0.0480
       Total |  2957.71429   174   16.998358           Root MSE      =  4.0227

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0533623   .0175865    -3.03   0.003    -.0880769   -.0186476
Fiscal_Rel~e |
         L1. |   .0635832   .0191134     3.33   0.001     .0258547    .1013118
         D1. |   .0461917   .0499341     0.93   0.356     -.052375    .1447583
       _cons |   1.091685   .5567217     1.96   0.052    -.0072467    2.190617
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.196               1                   0.6579
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  14.66301  Chi-sq( 9)  P-value =  .1006

. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     175
                                                       F(  3,   171) =    1.05
                                                       Prob > F      =  0.3740
                                                       R-squared     =  0.0644
                                                       Root MSE      =  4.0227

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0533623   .0303308    -1.76   0.080    -.1132332    .0065087
Fiscal_Rel~e |
         L1. |   .0635832   .0370171     1.72   0.088     -.009486    .1366525
         D1. |   .0461917   .0329573     1.40   0.163    -.0188638    .1112472
       _cons |   1.091685   .7162057     1.52   0.129    -.3220575    2.505428
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.191539   .1265844    -9.41   0.000    -1.441408   -.9416697
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0
```

```
      F(  2,   171) =    1.55
           Prob > F =    0.2152

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     175
-------------+------------------------------           F(  3,   171) =    3.48
       Model |  171.986104     3  57.3287012           Prob > F      =  0.0171
    Residual |  2813.72818   171  16.4545508           R-squared     =  0.0576
-------------+------------------------------           Adj R-squared =  0.0411
       Total |  2985.71429   174  17.1592775           Root MSE      =  4.0564

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0544973    .018204    -2.99   0.003    -.0904308   -.0185637
Fiscal_Rel~e |
         L1. |   .0625199   .0198582     3.15   0.002      .023321    .1017187
         LD. |  -.0360101   .0520931    -0.69   0.490    -.1388384    .0668182
       _cons |   1.161065   .5675685     2.05   0.042     .0407226    2.281408
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.161               1                   0.6878
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  11.94702  Chi-sq( 9)  P-value =  .2163

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.147211   .2232477    -5.14   0.000    -1.587887   -.7065344
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   171) =    5.21
            Prob > F =    0.0064

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     174
-------------+------------------------------           F(  3,   170) =    3.34
       Model |  165.979894     3  55.3266314           Prob > F      =  0.0208
    Residual |  2819.65229   170  16.5861899           R-squared     =  0.0556
-------------+------------------------------           Adj R-squared =  0.0389
       Total |  2985.63218   173  17.2579895           Root MSE      =  4.0726

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0504223   .0180647    -2.79   0.006    -.0860823   -.0147623
Fiscal_Rel~e |
         L1. |   .0573932    .019638     2.92   0.004     .0186274     .096159
        L2D. |   .0174411   .0514546     0.34   0.735    -.0841313    .1190134
       _cons |   1.084002   .5692947     1.90   0.059    -.0397949      2.2078
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.103               1                   0.7479
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  19.33594  Chi-sq( 9)  P-value =  .0225

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     174
                                                       F(  3,   170) =    2.32
                                                       Prob > F      =  0.0774
                                                       R-squared     =  0.0556
                                                       Root MSE      =  4.0726

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0504223   .0267236    -1.89   0.061    -.1031752    .0023306
Fiscal_Rel~e |
         L1. |   .0573932   .0317986     1.80   0.073    -.0053777    .1201641
        L2D. |   .0174411   .0617719     0.28   0.778    -.1044978    .1393799
       _cons |   1.084002   .6692485     1.62   0.107    -.2371053     2.40511
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.138251   .1379733    -8.25   0.000    -1.410612   -.8658892
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0
```

```
       F(  2,   170) =    1.79
            Prob > F =    0.1694
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     173
-------------+------------------------------           F(  3,   169) =    3.32
       Model |  166.373137     3  55.4577122           Prob > F      =  0.0211
    Residual |    2819.176   169  16.6815148           R-squared     =  0.0557
-------------+------------------------------           Adj R-squared =  0.0390
       Total |  2985.54913   172  17.3578438           Root MSE      =  4.0843

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0520392   .0178625    -2.91   0.004    -.0873015   -.0167768
Fiscal_Rel~e |
         L1. |   .0594084   .0193331     3.07   0.002     .0212429    .0975738
        L3D. |   -.019111   .0509361    -0.38   0.708    -.1196639    .0814419
       _cons |   1.118804   .5696929     1.96   0.051    -.0058272    2.243435
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.087               1                   0.7684
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  11.02233  Chi-sq( 9)  P-value =  .2742

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.141609   .2351508    -4.85   0.000     -1.60582   -.6773974
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   169) =    4.98
            Prob > F =    0.0079

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     172
-------------+------------------------------           F(  3,   168) =    3.56
       Model |  178.377843     3  59.4592809           Prob > F      =  0.0156
    Residual |  2807.08727   168  16.7088528           R-squared     =  0.0597
-------------+------------------------------           Adj R-squared =  0.0430
       Total |  2985.46512   171  17.4588603           Root MSE      =  4.0876

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.053014   .0178993    -2.96   0.004    -.0883507   -.0176774
Fiscal_Rel~e |
         L1. |   .0605424    .019395     3.12   0.002      .022253    .0988318
        L4D. |  -.0474503   .0511083    -0.93   0.355    -.1483474    .0534469
       _cons |   1.141753   .5715617     2.00   0.047     .0133844    2.270122
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.096               1                   0.7562
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  19.88447  Chi-sq( 9)  P-value =  .0186

. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =     172
                                                       F(  3,   168) =    1.67
                                                       Prob > F      =  0.1760
                                                       R-squared     =  0.0597
                                                       Root MSE      =  4.0876

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.053014   .0311933    -1.70   0.091    -.1145954    .0085673
Fiscal_Rel~e |
         L1. |   .0605424   .0375856     1.61   0.109    -.0136586    .1347434
        L4D. |  -.0474503   .0602239    -0.79   0.432    -.1663434    .0714428
       _cons |   1.141753    .762866     1.50   0.136    -.3642857    2.647792
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.142007   .1371857    -8.32   0.000    -1.412837   -.8711774
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0
```

```
      F(  2,   168) =    1.49
           Prob > F =    0.2283
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =     171
-------------+------------------------------           F(  3,   167) =    3.28
       Model |  166.118654     3  55.3728847           Prob > F      =  0.0224
    Residual |  2819.26146   167  16.8818052           R-squared     =  0.0556
-------------+------------------------------           Adj R-squared =  0.0387
       Total |  2985.38012   170  17.5610595           Root MSE      =  4.1087

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0508499   .0180348    -2.82   0.005    -.0864556   -.0152442
Fiscal_Rel~e |
         L1. |   .0581211   .0195638     2.97   0.003     .0194969    .0967452
        L5D. |    .018572   .0515242     0.36   0.719    -.0831508    .1202947
       _cons |   1.083214   .5762469     1.88   0.062    -.0544532    2.220882
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.151               1                   0.6979
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :   11.9295  Chi-sq( 9)  P-value =  .2173

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.142993   .2430427    -4.70   0.000    -1.622825   -.6631605
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

      F(  2,   167) =    4.66
           Prob > F =    0.0108
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -495.711   Log-Lik Full Model:           -489.884
D(171):                        979.768   LR(3):                          11.653
                                         Prob > LR:                       0.009
R2:                              0.064   Adjusted R2:                     0.048
AIC:                             5.644   AIC*n:                         987.768
BIC:                            96.589   BIC':                            3.841
BIC used by Stata:            1000.427   AIC used by Stata:             987.768

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -493.374   Log-Lik Full Model:           -487.388
D(169):                        974.777   LR(4):                          11.971
                                         Prob > LR:                       0.018
R2:                              0.066   Adjusted R2:                     0.044
AIC:                             5.660   AIC*n:                         984.777
BIC:                           102.896   BIC':                            8.666
BIC used by Stata:            1000.572   AIC used by Stata:             984.777

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -491.034   Log-Lik Full Model:           -484.884
D(167):                        969.767   LR(5):                          12.300
                                         Prob > LR:                       0.031
R2:                              0.069   Adjusted R2:                     0.041
AIC:                             5.675   AIC*n:                         981.767
BIC:                           109.167   BIC':                           13.466
BIC used by Stata:            1000.687   AIC used by Stata:             981.767

(Indices saved in matrix fs_mod1)

. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -488.691   Log-Lik Full Model:           -482.490
D(165):                        964.980   LR(6):                          12.402
                                         Prob > LR:                       0.054
R2:                              0.070   Adjusted R2:                     0.036
AIC:                             5.692   AIC*n:                         978.980
BIC:                           115.644   BIC':                           18.483
BIC used by Stata:            1001.013   AIC used by Stata:             978.980

(Indices saved in matrix fs_mod1)
```

.

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance if
GDP_Per_Cap_Haber_Men_2 !=.

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -369.513   Log-Lik Full Model:           -364.800
D(116):                        729.599   LR(6):                           9.426
                                         Prob > LR:                       0.151
R2:                              0.074   Adjusted R2:                     0.026
AIC:                             6.046   AIC*n:                         743.599
BIC:                           171.386   BIC':                           19.447
BIC used by Stata:             763.285   AIC used by Stata:             743.599

(Indices saved in matrix fs_mod1)
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
l.GDP_Per_Cap_Haber_Men_2 != . & l.REGION_DEM_DIFFUSE != . & l.WORLD_DEM_DIFFUSE != .

      Source |       SS       df       MS              Number of obs =     122
-------------+------------------------------           F(  3,   118) =    2.89
       Model |   200.61395     3  66.8713165           Prob > F      =  0.0383
    Residual |  2728.89425   118  23.1262224           R-squared     =  0.0685
-------------+------------------------------           Adj R-squared =  0.0448
       Total |   2929.5082   121  24.2108115           Root MSE      =   4.809

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0558014   .0212648    -2.62   0.010    -.0979114   -.0136914
Fiscal_Rel~e |
         L1. |   .0728238   .0257984     2.82   0.006     .0217359    .1239117
         D1. |   .0516533    .060113     0.86   0.392    -.0673868    .1706935
       _cons |   .7540571   .7976015     0.95   0.346    -.8254111    2.333525
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.119               1                   0.7299
---------------------------------------------------------------------------
                        H0: no serial correlation

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.305053   .3209344    -4.07   0.000     -1.94059   -.6695152
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   118) =    4.21
            Prob > F =    0.0171

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -367.003   Log-Lik Full Model:           -362.676
D(118):                        725.352   LR(3):                           8.654
                                         Prob > LR:                       0.034
R2:                              0.068   Adjusted R2:                     0.045
AIC:                             6.011   AIC*n:                         733.352
BIC:                           158.477   BIC':                            5.758
BIC used by Stata:             744.568   AIC used by Stata:             733.352

(Indices saved in matrix fs_mod1)

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE d.Fiscal_Reliance d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =     122
-------------+------------------------------           F(  9,   112) =    2.18
       Model |  436.036643     9  48.4485159           Prob > F      =  0.0288
    Residual |  2493.47155   112  22.2631389           R-squared     =  0.1488
-------------+------------------------------           Adj R-squared =  0.0804
       Total |   2929.5082   121  24.2108115           Root MSE      =  4.7184

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.084494    .030358    -2.78   0.006    -.1446445   -.0243435
Fiscal_Rel~e |
         L1. |   .0570915   .0743689     0.77   0.444    -.0902608    .2044439
log_gdp_pe~2 |
         L1. |   1.458615   1.924913     0.76   0.450    -2.355354    5.272584
REGION_DEM~E |
         L1. |   .0422046   .0420462     1.00   0.318    -.0411045    .1255137
WORLD_DEM_~E |
         L1. |  -.1957551   .1201195    -1.63   0.106    -.4337565    .0422463
Fiscal_Rel~e |
         D1. |   .0464639   .0678618     0.68   0.495    -.0879956    .1809235
log_gdp_pe~2 |
         D1. |  -8.129751    5.68086    -1.43   0.155    -19.38565    3.126145
REGION_DEM~E |
         D1. |   .0186185    .182668     0.10   0.919    -.3433148    .3805517
WORLD_DEM_~E |
         D1. |  -.4924419   .3067625    -1.61   0.111    -1.100252    .1153686
       _cons |  -4.282629   12.11931    -0.35   0.724    -28.29549    19.73023
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.154               1                   0.6947
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  87.61627  Chi-sq(54)  P-value =  .0026
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE d.Fiscal_Reliance d.log_gdp_per_cap_haber_men_2
d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE, r

Linear regression                                      Number of obs =     122
                                                       F(  9,   112) =    1.21
                                                       Prob > F      =  0.2983
                                                       R-squared     =  0.1488
                                                       Root MSE      =  4.7184

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.084494   .0408587    -2.07   0.041    -.1654502   -.0035378
Fiscal_Rel~e |
         L1. |   .0570915   .0412678     1.38   0.169    -.0246754    .1388584
log_gdp_pe~2 |
         L1. |   1.458615   1.109336     1.31   0.191     -.739392    3.656622
REGION_DEM~E |
         L1. |   .0422046   .0311781     1.35   0.179    -.0195709    .1039801
WORLD_DEM_~E |
         L1. |  -.1957551   .1020653    -1.92   0.058    -.3979845    .0064743
Fiscal_Rel~e |
         D1. |   .0464639    .032786     1.42   0.159    -.0184973    .1114252
log_gdp_pe~2 |
         D1. |  -8.129751   6.159898    -1.32   0.190     -20.3348    4.075297
REGION_DEM~E |
         D1. |   .0186185   .0867524     0.21   0.830    -.1532703    .1905072
WORLD_DEM_~E |
         D1. |  -.4924419   .3762572    -1.31   0.193    -1.237947    .2530635
       _cons |  -4.282629   6.057892    -0.71   0.481    -16.28557    7.720308
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6756875   .4023022    -1.68   0.096    -1.472798    .1214227
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,   112) =    2.17
            Prob > F =    0.1194

. test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0

       F(  3,   112) =    1.59
            Prob > F =    0.1961

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,   112) =    0.73
```

```
           Prob > F =    0.5339

. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -367.003   Log-Lik Full Model:           -357.173
D(112):                        714.345   LR(9):                          19.661
                                         Prob > LR:                       0.020
R2:                              0.149   Adjusted R2:                     0.080
AIC:                             6.019   AIC*n:                         734.345
BIC:                           176.295   BIC':                           23.575
BIC used by Stata:             762.385   AIC used by Stata:             734.345

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE YEMEN TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

YEMEN'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        87

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.376            -4.069            -3.463            -3.158
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3923

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1163679   .0489701    -2.38   0.020    -.2137675   -.0189682
         LD. |   .1469659   .1085821     1.35   0.180    -.0689995    .3629313
      _trend |   .0604014   .0309902     1.95   0.055    -.0012369    .1220398
       _cons |   .0148675   .9151489     0.02   0.987    -1.805327    1.835062
------------------------------------------------------------------------------

.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        86

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.031            -4.071            -3.464            -3.158
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8990511   .1490713    -6.03   0.000    -1.195601   -.6025009
         LD. |  -.0134512   .1104205    -0.12   0.903    -.2331128    .2062103
      _trend |  -.0009345   .0183883    -0.05   0.960    -.0375148    .0356457
       _cons |   .4597506   .9394621     0.49   0.626    -1.409139     2.32864
------------------------------------------------------------------------------

.
.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        86

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.068            -3.530            -2.901            -2.586
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -.8990627   .1481727    -6.07   0.000    -1.193772   -.6043532
         LD. |  -.0134316   .1097544    -0.12   0.903    -.2317286    .2048654
       _cons |   .4181687   .4589294     0.91   0.365    -.4946235    1.330961
------------------------------------------------------------------------------

.
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        83

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -0.452            -4.077            -3.467            -3.160
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9852

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.0129698   .0286712    -0.45   0.652    -.0700384    .0440988
         LD. |   .1899037   .1073052     1.77   0.081     -.023682    .4034895
      _trend |   .0436601   .0249006     1.75   0.083    -.0059032    .0932235
       _cons |  -1.107117   1.038859    -1.07   0.290    -3.174913    .9606793
------------------------------------------------------------------------------

.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        83

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)              0.869            -3.534            -2.904            -2.587
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.9927

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |    .019339   .0222488     0.87   0.387    -.0249376    .0636155
         LD. |    .190016   .1086875     1.75   0.084     -.026279     .406311
       _cons |   .4873057   .5087868     0.96   0.341    -.5252122    1.499824
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        81

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)            -10.692            -4.082            -3.469            -3.161
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.258302   .1176848   -10.69   0.000    -1.492643   -1.023962
         LD. |   .5639678    .094483     5.97   0.000     .3758281    .7521075
      _trend |   .0484236   .0167435     2.89   0.005     .0150831    .0817641
       _cons |  -1.215633   .7990078    -1.52   0.132     -2.80666     .375395
------------------------------------------------------------------------------


dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        81

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -9.840            -3.537            -2.905            -2.588
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.170431   .1189412    -9.84   0.000    -1.407225   -.9336374
         LD. |    .535464   .0983034     5.45   0.000      .339757     .731171
       _cons |   .7863684   .4174449     1.88   0.063    -.0447005    1.617437
------------------------------------------------------------------------------
```

YEMEN'S CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon 1991.

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        87
maximum lag: 1                                      F(  1,    85)  =     67.94
                                                    Prob > F       =    0.0000

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |   .3750503   .0455005     8.24   0.000     .2845831    .4655174
       _cons |   15.88373   2.476374     6.41   0.000     10.96004    20.80743
------------------------------------------------------------------------------

dfuller res, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        83

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.618            -4.077            -3.467            -3.160
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.7853

------------------------------------------------------------------------------
D.res        |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         res |
         L1. |  -.0702315   .0434047    -1.62   0.110    -.1566265    .0161634
         LD. |   .1491417   .1097379     1.36   0.178    -.0692861    .3675695
      _trend |   .0033579   .0243066     0.14   0.890    -.0450232     .051739
       _cons |   -.091651   1.160432    -0.08   0.937    -2.401433    2.218131
------------------------------------------------------------------------------

dfuller res, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        83

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.910            -3.534            -2.904            -2.587
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3273

------------------------------------------------------------------------------
       D.res |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         res |
         L1. |  -.0667117   .0349235    -1.91   0.060    -.1362116    .0027882
         LD. |   .1461838   .1069669     1.37   0.176    -.0666872    .3590548
       _cons |   .0540403   .4811585     0.11   0.911    -.9034956    1.011576
```

```
------------------------------------------------------------------------------
The critical value for co-integration with NO trend is -3.9001 at the 10 percent level.
This is below that level.
```

We cannot reject the hypothesis of non-integration. Therefore, we conclude that Polity and Fiscal Reliance are not co-integrated series.

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      85
-------------+------------------------------           F(  3,    81) =    0.71
       Model |  37.1953932     3  12.3984644           Prob > F      =  0.5515
    Residual |  1423.39284    81  17.5727511           R-squared     =  0.0255
-------------+------------------------------           Adj R-squared = -0.0106
       Total |  1460.58824    84  17.3879552           Root MSE      =   4.192

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0478264   .0329991    -1.45   0.151    -.1134842    .0178315
Fiscal_Rel~e |
         L1. |   .0194121   .0241993     0.80   0.425    -.0287369    .0675612
         D1. |   .0032148   .1028471     0.03   0.975    -.2014186    .2078482
       _cons |    1.15644   .7193014     1.61   0.112    -.2747439    2.587625
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.862               1                   0.3531
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  1.472747  Chi-sq( 9)  P-value =  .9973

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4058878   .4352025    -0.93   0.354    -1.271804    .4600286
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    81) =    1.05
            Prob > F =    0.3537
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      85
-------------+------------------------------           F(  3,    81) =    0.77
       Model |  40.1468273     3  13.3822758           Prob > F      =  0.5115
    Residual |  1399.26494    81  17.2748758           R-squared     =  0.0279
-------------+------------------------------           Adj R-squared = -0.0081
       Total |  1439.41176    84  17.1358543           Root MSE      =  4.1563

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0486674    .032803    -1.48   0.142     -.113935    .0166002
Fiscal_Rel~e |
         L1. |   .0174858   .0240343     0.73   0.469    -.0303349    .0653064
         LD. |  -.0377884    .105616    -0.36   0.721    -.2479311    .1723543
       _cons |   1.167612   .7237855     1.61   0.111    -.2724945    2.607718
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.643               1                   0.4228
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.514542  Chi-sq( 9)  P-value =   .997

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3592911   .4237073    -0.85   0.399    -1.202336    .4837536
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    81) =    1.10
            Prob > F =    0.3373

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      83
-------------+------------------------------           F(  3,    79) =    0.84
       Model |  43.9209112     3  14.6403037           Prob > F      =  0.4749
    Residual |  1373.54897    79  17.3866958           R-squared     =  0.0310
-------------+------------------------------           Adj R-squared = -0.0058
       Total |  1417.46988    82   17.286218           Root MSE      =  4.1697

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0521275   .0332943    -1.57   0.121     -.118398    .0141431
Fiscal_Rel~e |
         L1. |   .0139365    .024425     0.57   0.570    -.0346803    .0625532
        L2D. |   .0029153   .1075677     0.03   0.978    -.2111929    .2170234
       _cons |   1.200032   .7378296     1.63   0.108    -.2685806    2.668645
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.624               1                   0.4294
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  1.466837  Chi-sq( 9)  P-value =  .9974

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2673534   .4081337    -0.66   0.514    -1.079723    .5450165
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    79) =    1.26
            Prob > F =    0.2886

.
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      82
-------------+------------------------------           F(  3,    78) =    0.85
       Model |  45.3584983     3  15.1194994           Prob > F      =  0.4728
    Residual |  1393.66589    78  17.8675114           R-squared     =  0.0315
-------------+------------------------------           Adj R-squared = -0.0057
       Total |  1439.02439    81  17.7657332           Root MSE      =   4.227

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |   -.054203   .0341865    -1.59   0.117    -.1222632    .0138571
Fiscal_Rel~e |
         L1. |   .0183044   .0238909     0.77   0.446    -.0292588    .0658675
        L3D. |  -.0161866   .1111875    -0.15   0.885     -.237544    .2051708
       _cons |   1.272252   .7592774     1.68   0.098    -.2393536    2.783857
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.625               1                   0.4291
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :  1.372926  Chi-sq( 9)  P-value =   .998

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3377003   .3795009    -0.89   0.376    -1.093229    .4178279
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    78) =    1.26
            Prob > F =    0.2899
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      81
-------------+------------------------------           F(  3,    77) =    0.78
       Model |  43.0138147     3  14.3379382           Prob > F      =  0.5091
    Residual |  1416.86273    77  18.4008147           R-squared     =  0.0295
-------------+------------------------------           Adj R-squared = -0.0083
       Total |  1459.87654    80  18.2484568           Root MSE      =  4.2896

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0532251   .0351374    -1.51   0.134    -.1231927    .0167424
Fiscal_Rel~e |
         L1. |   .0180203   .0241053     0.75   0.457    -.0299795    .0660201
        L4D. |   .0242114   .1070705     0.23   0.822    -.1889933     .237416
       _cons |   1.309197   .7837913     1.67   0.099    -.2515311    2.869925
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.829               1                   0.3626
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.257653  Chi-sq( 9)  P-value =  .9986

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3385677   .3905296    -0.87   0.389    -1.116212    .4390761
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    77) =    1.15
            Prob > F =    0.3228
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      80
-------------+------------------------------           F(  3,    76) =    0.83
       Model |  46.2678862     3  15.4226287           Prob > F      =  0.4818
    Residual |  1413.41961    76  18.5976265           R-squared     =  0.0317
-------------+------------------------------           Adj R-squared = -0.0065
       Total |   1459.6875    79   18.477057           Root MSE      =  4.3125

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0544425   .0354968    -1.53   0.129    -.1251405    .0162555
Fiscal_Rel~e |
         L1. |   .0171091   .0247196     0.69   0.491    -.0321242    .0663424
        L5D. |   .0418224   .1101735     0.38   0.705    -.1776071    .2612519
       _cons |   1.353334   .8010489     1.69   0.095    -.2420933    2.948761
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.822               1                   0.3645
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.243415  Chi-sq( 9)  P-value =  .9986

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3142604   .3954282    -0.79   0.429    -1.101824    .4733032
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    76) =    1.18
            Prob > F =    0.3132
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -241.477   Log-Lik Full Model:           -240.381
D(81):                         480.762   LR(3):                           2.193
                                         Prob > LR:                       0.533
R2:                              0.025   Adjusted R2:                    -0.011
AIC:                             5.750   AIC*n:                         488.762
BIC:                           120.907   BIC':                           11.135
BIC used by Stata:             498.533   AIC used by Stata:             488.762

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -236.170   Log-Lik Full Model:           -234.874
D(78):                         469.749   LR(4):                           2.592
                                         Prob > LR:                       0.628
R2:                              0.031   Adjusted R2:                    -0.019
AIC:                             5.780   AIC*n:                         479.749
BIC:                           125.079   BIC':                           15.083
BIC used by Stata:             491.843   AIC used by Stata:             479.749

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -230.847   Log-Lik Full Model:           -229.383
D(75):                         458.767   LR(5):                           2.927
                                         Prob > LR:                       0.711
R2:                              0.035   Adjusted R2:                    -0.029
AIC:                             5.812   AIC*n:                         470.767
BIC:                           129.183   BIC':                           19.045
BIC used by Stata:             485.134   AIC used by Stata:             470.767

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance

.
.
```

```
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -226.129   Log-Lik Full Model:           -224.611
D(72):                         449.222   LR(6):                           3.036
                                         Prob > LR:                       0.804
R2:                              0.038   Adjusted R2:                    -0.042
AIC:                             5.864   AIC*n:                         463.222
BIC:                           134.622   BIC':                           23.181
BIC used by Stata:             479.808   AIC used by Stata:             463.222

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance L.4.d.
> Fiscal_Reliance

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -221.386   Log-Lik Full Model:           -219.751
D(69):                         439.501   LR(7):                           3.271
                                         Prob > LR:                       0.859
R2:                              0.042   Adjusted R2:                    -0.056
AIC:                             5.916   AIC*n:                         455.501
BIC:                           139.779   BIC':                           27.136
BIC used by Stata:             474.252   AIC used by Stata:             455.501

(Indices saved in matrix fs_mod1)
```

CHOOSING LAG STRUCTURE WITH TRUNCATION TO 1950 DUE TO MISSING DATA ON GDP PER CAPITA

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
log_gdp_per_cap_haber_men_2 != .

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -162.943   Log-Lik Full Model:           -160.489
D(50):                         320.979   LR(3):                           4.907
                                         Prob > LR:                       0.179
R2:                              0.087   Adjusted R2:                     0.032
AIC:                             6.092   AIC*n:                         328.979
BIC:                           121.529   BIC':                            7.060
BIC used by Stata:             336.934   AIC used by Stata:             328.979

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance if log_gdp_per_cap_haber_men_2 != .

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -159.961   Log-Lik Full Model:           -157.485
D(48):                         314.971   LR(4):                           4.951
                                         Prob > LR:                       0.292
R2:                              0.089   Adjusted R2:                     0.013
AIC:                             6.132   AIC*n:                         324.971
BIC:                           124.397   BIC':                           10.930
BIC used by Stata:             334.822   AIC used by Stata:             324.971

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance if log_gdp_per_cap_haber_men
> _2 != .

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -156.961   Log-Lik Full Model:           -154.478
D(46):                         308.956   LR(5):                           4.965
                                         Prob > LR:                       0.420
R2:                              0.091   Adjusted R2:                    -0.008
AIC:                             6.172   AIC*n:                         320.956
BIC:                           127.199   BIC':                           14.791
BIC used by Stata:             332.664   AIC used by Stata:             320.956

(Indices saved in matrix fs_mod1)
```

```
.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance if log
> _gdp_per_cap_haber_men_2 != .

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -154.437   Log-Lik Full Model:           -151.929
D(44):                         303.858   LR(6):                           5.017
                                         Prob > LR:                       0.542
R2:                              0.094   Adjusted R2:                    -0.030
AIC:                             6.233   AIC*n:                         317.858
BIC:                           130.858   BIC':                           18.574
BIC used by Stata:             331.381   AIC used by Stata:             317.858

(Indices saved in matrix fs_mod1)

.
.
.
. quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
L.d.Fiscal_Reliance L.2.d.Fiscal_Reliance L.3.d.Fiscal_Reliance L.4.d.
> Fiscal_Reliance if log_gdp_per_cap_haber_men_2 != .

.
.
.
. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -151.904   Log-Lik Full Model:           -149.406
D(42):                         298.811   LR(7):                           4.997
                                         Prob > LR:                       0.660
R2:                              0.095   Adjusted R2:                    -0.056
AIC:                             6.296   AIC*n:                         314.811
BIC:                           134.506   BIC':                           22.387
BIC used by Stata:             330.107   AIC used by Stata:             314.811

(Indices saved in matrix fs_mod1)

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance if
log_gdp_per_cap_haber_men_2 != .

      Source |       SS       df       MS              Number of obs =      54
-------------+------------------------------           F(  3,    50) =    1.59
       Model |  114.725436     3  38.2418119           Prob > F      =  0.2046
    Residual |   1206.1079    50   24.122158           R-squared     =  0.0869
-------------+------------------------------           Adj R-squared =  0.0321
       Total |  1320.83333    53  24.9213836           Root MSE      =  4.9114

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1675852   .0771175    -2.17   0.035    -.3224803   -.0126902
Fiscal_Rel~e |
         L1. |   .0367832    .029733     1.24   0.222    -.0229374    .0965037
         D1. |   .0088175   .1205345     0.07   0.942    -.2332832    .2509181
       _cons |    4.73786    2.22142     2.13   0.038     .2760078    9.199713
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.601               1                   0.4383
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  1.256903  Chi-sq( 9)  P-value =  .9986

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2194894   .1541925    -1.42   0.161    -.5291941    .0902152
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    50) =    2.38
            Prob > F =    0.1033
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -162.943   Log-Lik Full Model:           -160.489
D(50):                         320.979   LR(3):                           4.907
                                         Prob > LR:                       0.179
R2:                              0.087   Adjusted R2:                     0.032
AIC:                             6.092   AIC*n:                         328.979
BIC:                           121.529   BIC':                            7.060
BIC used by Stata:             336.934   AIC used by Stata:             328.979

(Indices saved in matrix fs_mod1)
```

```
regress D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fiscal_Reliance
d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      53
-------------+------------------------------           F( 10,    42) =    0.87
       Model |  225.580679    10  22.5580679           Prob > F      =  0.5717
    Residual |  1095.17404    42  26.0755723           R-squared     =  0.1708
-------------+------------------------------           Adj R-squared = -0.0266
       Total |  1320.75472    52  25.3991292           Root MSE      =  5.1064

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2026323   .1381596    -1.47   0.150    -.4814496     .076185
log_gdp_pe~2 |
         L1. |   -3.40656   2.604549    -1.31   0.198    -8.662754    1.849633
REGION_DEM~E |
         L1. |  -.0611857   .3961789    -0.15   0.878    -.8607071    .7383357
WORLD_DEM_~E |
         L1. |  -.0330233   .3870103    -0.09   0.932    -.8140416    .7479951
Civil_War_~h |
         L1. |   .7637854   3.164055     0.24   0.810    -5.621536    7.149107
Fiscal_Rel~e |
         L1. |   .0771044   .1085036     0.71   0.481    -.1418647    .2960735
         D1. |   .0548527    .149665     0.37   0.716    -.2471835     .356889
log_gdp_pe~2 |
         D1. |  -.3151691   21.78962    -0.01   0.989    -44.28841    43.65807
REGION_DEM~E |
         D1. |  -.1960546   .3657696    -0.54   0.595    -.9342076    .5420983
WORLD_DEM_~E |
         D1. |   .9438442   .6278926     1.50   0.140    -.3232943    2.210983
       _cons |   28.28503   23.08319     1.23   0.227    -18.29873    74.86879
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  1   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          3.039               1                   0.0813
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :        53  Chi-sq(52)  P-value =  .4354
```

```
newey D.polity_s l.polity_s l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE
l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch  l.Fiscal_Reliance d.Fis
cal_Reliance d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE, lag(1)
force

Regression with Newey-West standard errors          Number of obs  =        53
maximum lag: 1                                      F( 10,    42)  =      0.81
                                                    Prob > F       =    0.6162

------------------------------------------------------------------------------
             |             Newey-West
   D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.2026323   .1167307    -1.74   0.090    -.4382044    .0329398
log_gdp_pe~2 |
         L1. |   -3.40656    3.23637    -1.05   0.299    -9.937818    3.124698
REGION_DEM~E |
         L1. |  -.0611857   .2834129    -0.22   0.830    -.6331361    .5107647
WORLD_DEM_~E |
         L1. |  -.0330233   .3485849    -0.09   0.925    -.7364962    .6704496
Civil_War_~h |
         L1. |   .7637854   1.503036     0.51   0.614    -2.269463    3.797034
Fiscal_Rel~e |
         L1. |   .0771044   .0987294     0.78   0.439    -.1221396    .2763484
         D1. |   .0548527   .0984718     0.56   0.580    -.1438715     .253577
log_gdp_pe~2 |
         D1. |  -.3151691   14.83111    -0.02   0.983    -30.24556    29.61522
REGION_DEM~E |
         D1. |  -.1960546   .1781872    -1.10   0.277     -.555651    .1635418
WORLD_DEM_~E |
         D1. |   .9438442   .4549605     2.07   0.044     .0256968    1.861992
       _cons |   28.28503   30.18496     0.94   0.354    -32.63069    89.20074
------------------------------------------------------------------------------

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3805137   .3539156    -1.08   0.288    -1.094744    .3337169
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    42) =    1.82
            Prob > F =    0.1751

test l.log_gdp_per_cap_haber_men l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0

       F(  4,    42) =    0.91
            Prob > F =    0.4652
```

```
test d.log_gdp_per_cap_haber_men d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    42) =    1.49
            Prob > F =    0.2324



. fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -160.419   Log-Lik Full Model:           -155.456
D(42):                         310.911   LR(10):                          9.926
                                         Prob > LR:                       0.447
R2:                              0.171   Adjusted R2:                    -0.027
AIC:                             6.281   AIC*n:                         332.911
BIC:                           144.159   BIC':                           29.777
BIC used by Stata:             354.585   AIC used by Stata:             332.911

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR THE ZAMBIA TIME-SERIES.

NOTA BENE:

We always calculate Unit Root Tests (using Augmented Dickey Fuller Tests) on Polity and Fiscal Reliance, first in levels and then in differences, before performing Engle Granger cointegration tests. These are proceeded by ECM cointegration tests and ECM regression estimation.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L.Fiscal Reliance]/_b[L_polity_s]`

NOTA BENE:

We always run a bunch of single lag experiments, where we introduce different lag lengths of Fiscal Reliance in differences. We do so one at a time. Namely, we proceed as follows: we introduce Fiscal Reliance lagged one year. Then we remove it and introduce the second lag of Fiscal Reliance and keep doing this until we reach Fiscal Reliance in t-5. These are reported in the regression tables in the appendix.

NOTA BENE:

Finally, we run a series of finite distributed lag models (where all of the lags are introduced simultaneously) and then use the BIC statistic to choose the most parsimonious model and that model is estimated and reported in the regression table in the online appendix.

ZAMBIA'S UNIT-ROOT TESTS

Polity_s

```
dfuller polity_s, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.087            -4.233            -3.536            -3.202
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5535

------------------------------------------------------------------------------
D.polity_s   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1704293   .0816715    -2.09   0.044    -.3359114   -.0049472
         LD. |   .0358837   .1588769     0.23   0.823    -.2860315    .3577989
      _trend |   .4040487   .2110171     1.91   0.063    -.0235126    .8316099
       _cons |  -2.197208   4.902377    -0.45   0.657    -12.13037    7.735952
------------------------------------------------------------------------------

.
.
.
dfuller polity_s, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        41

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -1.376            -3.641            -2.955            -2.611
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.5939

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.1058447   .0769463    -1.38   0.177    -.2616143    .0499249
         LD. |   .0578162   .1639286     0.35   0.726      -.27404    .3896724
       _cons |   4.281608   3.669814     1.17   0.251    -3.147543    11.71076
------------------------------------------------------------------------------

.
.
```

Polity_s_FD

```
dfuller polity_s_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        40

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.469            -4.242            -3.540            -3.204
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0017

------------------------------------------------------------------------------
D.polity_s~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.071783   .2398193    -4.47   0.000    -1.558159    -.585407
         LD. |   .0361027   .1667006     0.22   0.830    -.3019817    .3741872
      _trend |   .2471355   .2174458     1.14   0.263    -.1938651     .688136
       _cons |  -4.911494   5.246514    -0.94   0.355    -15.55192     5.72893
------------------------------------------------------------------------------

.
.
dfuller polity_s_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        40

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -4.305            -3.648            -2.958            -2.612
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0004

------------------------------------------------------------------------------
D.           |
 polity_s_FD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 polity_s_FD |
         L1. |  -1.001284   .2325698    -4.31   0.000    -1.472515   -.5300526
         LD. |   .0006418    .164399     0.00   0.997    -.3324621    .3337458
       _cons |   .3754814   2.435745     0.15   0.878    -4.559807     5.31077
------------------------------------------------------------------------------
```

Fiscal_Reliance_Resource_Revs

```
dfuller fiscalreliance, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.516            -4.343            -3.584            -3.230
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0377

------------------------------------------------------------------------------
D.fiscalre~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. |  -.401096   .1140753    -3.52   0.002    -.6360385   -.1661535
         LD. |  .2024767   .1558377     1.30   0.206     -.118477    .5234304
      _trend | -.1783234   .1482651    -1.20   0.240     -.483681    .1270342
       _cons |  6.015736   4.088675     1.47   0.154    -2.405048    14.43652
------------------------------------------------------------------------------

.
.
dfuller fiscalreliance, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -3.595            -3.723            -2.989            -2.625
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0059

------------------------------------------------------------------------------
D.           |
fiscalreli~e |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~e |
         L1. | -.3104319   .0863521    -3.59   0.001    -.4879312   -.1329326
         LD. |  .1472121   .1501829     0.98   0.336    -.1614933    .4559176
       _cons |  1.451033   1.533917     0.95   0.353     -1.70198    4.604045
------------------------------------------------------------------------------

.
.
```

Fiscal_Reliance_Resource_Revs_FD

```
dfuller fiscalreliance_FD, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        26

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -6.130            -4.371            -3.596            -3.238
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.fiscalre~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.464389   .2388875    -6.13   0.000    -1.959811   -.9689663
         LD. |   .4698598   .1619726     2.90   0.008     .1339491    .8057704
      _trend |   .2235247   .1339918     1.67   0.109    -.0543572    .5014066
       _cons |  -6.214414   2.798295    -2.22   0.037    -12.01772   -.4111049
------------------------------------------------------------------------------

.
.
dfuller fiscalreliance_FD, regress lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        26

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -5.687            -3.743            -2.997            -2.629
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0000

------------------------------------------------------------------------------
D.           |
fiscalreli~D |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
fiscalreli~D |
         L1. |  -1.371481   .2411404    -5.69   0.000    -1.870318   -.8726441
         LD. |   .4465896   .1675086     2.67   0.014     .1000717    .7931075
       _cons |  -2.234347   1.517869    -1.47   0.155    -5.374297    .9056044
------------------------------------------------------------------------------
```

CO-INTEGRATION TESTS

Dickey Fuller CRITICAL VALUES are NOT valid for the Engle-Granger co-integration test!!!

The critical values that STATA spits out after the Augmented Dickey Fuller Test are the critical values for an augmented Dickey Fuller Test on a variable, not residuals.

For an augmented Engle-Granger Test we instead turn to the critical values for cointegration provided by MacKinnon 1991

Polity and Fiscal Reliance

```
newey polity_s Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        36
maximum lag: 1                                      F(  1,    34)  =      0.00
                                                    Prob > F       =    0.9874

------------------------------------------------------------------------------
             |             Newey-West
    polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
Fiscal_Rel~e |  -.0048742    .306606    -0.02   0.987    -.6279726    .6182242
       _cons |   35.19656   9.280068     3.79   0.001      16.3372    54.05593
------------------------------------------------------------------------------

predict residual, res
(7 missing values generated)

dfuller residual, regress trend lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        29

                               ---------- Interpolated Dickey-Fuller ---------
                  Test         1% Critical       5% Critical      10% Critical
               Statistic           Value             Value             Value
------------------------------------------------------------------------------
 Z(t)             -2.366            -4.343            -3.584            -3.230
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.3981

------------------------------------------------------------------------------
D.residual   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    residual |
         L1. |   -.298588   .1262213    -2.37   0.026    -.5585456   -.0386303
         LD. |   .0478847   .1884584     0.25   0.802    -.3402526    .4360221
      _trend |   .9067393   .3459594     2.62   0.015     .1942226    1.619256
       _cons |   -17.4635   7.752738    -2.25   0.033    -33.43056   -1.496439
------------------------------------------------------------------------------
```

Test statistic: -2.37

Critical Values:

This t-stat is well short of the 10% significance level which is -3.496

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      32
-------------+------------------------------           F(  3,    28) =    0.38
       Model |  311.533487     3  103.844496           Prob > F      =  0.7685
    Residual |  7660.34151    28  273.583625           R-squared     =  0.0391
-------------+------------------------------           Adj R-squared = -0.0639
       Total |    7971.875    31  257.157258           Root MSE      =   16.54

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0835594   .0954981    -0.87   0.389    -.2791784    .1120596
Fiscal_Rel~e |
         L1. |  -.1410581   .2140778    -0.66   0.515    -.5795765    .2974604
         D1. |  -.1018803   .3951321    -0.26   0.798    -.9112717    .7075111
       _cons |   5.684333   4.870462     1.17   0.253    -4.292357    15.66102
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.017               1                   0.8959
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  7.970814  Chi-sq( 9)  P-value =  .5371

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.688117    3.11942     0.54   0.593    -4.701726    8.077959
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    28) =    0.57
            Prob > F =    0.5723

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      32
-------------+------------------------------           F(  3,    28) =    1.09
       Model |   833.63157     3  277.87719            Prob > F      =  0.3696
    Residual |  7138.24343    28  254.937265           R-squared     =  0.1046
-------------+------------------------------           Adj R-squared =  0.0086
       Total |    7971.875    31  257.157258           Root MSE      =  15.967

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0820801   .0880878    -0.93   0.359    -.2625197    .0983596
Fiscal_Rel~e |
         L1. |  -.1932551   .2075604    -0.93   0.360    -.6184232    .2319131
         LD. |   .5253373   .3626801     1.45   0.159    -.2175791    1.268254
       _cons |     6.8568   4.777226     1.44   0.162    -2.928904     16.6425
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.067               1                   0.7951
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  4.680523  Chi-sq( 9)  P-value =  .8612

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    2.35447   3.374692     0.70   0.491    -4.558274    9.267214
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    28) =    0.78
            Prob > F =    0.4670

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  3,    25) =    1.33
       Model |   329.94689     3  109.982297           Prob > F      =  0.2882
    Residual |  2073.50139    25  82.9400554           R-squared     =  0.1373
-------------+------------------------------           Adj R-squared =  0.0338
       Total |  2403.44828    28  85.8374384           Root MSE      =  9.1071

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |    -.03169   .0524585    -0.60   0.551    -.1397303    .0763503
Fiscal_Rel~e |
         L1. |  -.2936489   .1488478    -1.97   0.060    -.6002067     .012909
        L2D. |   .1674637   .2130817     0.79   0.439    -.2713863    .6063137
       _cons |    2.82967   2.967279     0.95   0.349    -3.281556    8.940897
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          2.910               1                   0.0881
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  22.32529  Chi-sq( 9)  P-value =  .0079

. newey D.polity_s l.polity_s l.Fiscal_Reliance L.2.d.Fiscal_Reliance, lag(1) force

Regression with Newey-West standard errors          Number of obs  =        29
maximum lag: 1                                      F(  3,    25)  =      0.74
                                                    Prob > F       =    0.5381

------------------------------------------------------------------------------
             |             Newey-West
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |    -.03169   .0389021    -0.81   0.423    -.1118104    .0484304
Fiscal_Rel~e |
         L1. |  -.2936489   .2039051    -1.44   0.162    -.7135994    .1263016
        L2D. |   .1674637   .1716099     0.98   0.338    -.1859736     .520901
       _cons |    2.82967   1.991632     1.42   0.168    -1.272173    6.931514
------------------------------------------------------------------------------

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   9.266293   8.158012     1.14   0.267    -7.535446    26.06803
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    25) =    1.08
            Prob > F =    0.3542
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      27
-------------+------------------------------           F(  3,    23) =    4.39
       Model |  874.571264     3  291.523755           Prob > F      =  0.0139
    Residual |  1527.28059    23  66.4035038           R-squared     =  0.3641
-------------+------------------------------           Adj R-squared =  0.2812
       Total |  2401.85185    26  92.3789174           Root MSE      =  8.1488

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0497421    .050671    -0.98   0.336     -.154563    .0550788
Fiscal_Rel~e |
         L1. |  -.5166747   .1756782    -2.94   0.007    -.8800928   -.1532567
        L3D. |  -.3944955     .18497    -2.13   0.044    -.7771351   -.0118558
       _cons |   3.671072   2.785489     1.32   0.201    -2.091151    9.433295
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  3   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.030               1                   0.8632
---------------------------------------------------------------------------
                        H0: no serial correlation
whitetst

White's general test statistic :  26.47616  Chi-sq( 9)  P-value =  .0017

regress D.polity_s l.polity_s l.Fiscal_Reliance L.3.d.Fiscal_Reliance, r

Linear regression                                      Number of obs =      27
                                                       F(  3,    23) =    0.85
                                                       Prob > F      =  0.4813
                                                       R-squared     =  0.3641
                                                       Root MSE      =  8.1488

------------------------------------------------------------------------------
             |               Robust
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0497421   .0459548    -1.08   0.290    -.1448069    .0453228
Fiscal_Rel~e |
         L1. |  -.5166747   .3450866    -1.50   0.148    -1.230541    .1971912
        L3D. |  -.3944955   .3129194    -1.26   0.220    -1.041818    .2528276
       _cons |   3.671072   2.753085     1.33   0.195    -2.024119    9.366263
------------------------------------------------------------------------------
nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   10.38708   5.701733     1.82   0.082    -1.407858    22.18201
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
  2)  L.Fiscal_Reliance = 0

       F(  2,    23) =    1.14
            Prob > F =    0.3358
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.4.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      26
-------------+------------------------------           F(  3,    22) =    0.21
       Model |  153.564064     3  51.1880213           Prob > F      =  0.8854
    Residual |  5255.08978    22  238.867717           R-squared     =  0.0284
-------------+------------------------------           Adj R-squared = -0.1041
       Total |  5408.65385    25  216.346154           Root MSE      =  15.455

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0366735   .1056426    -0.35   0.732    -.2557628    .1824158
Fiscal_Rel~e |
         L1. |   .1927912   .3925442     0.49   0.628    -.6212957    1.006878
        L4D. |   .0095969   .3528632     0.03   0.979    -.7221965    .7413903
       _cons |   2.542088   5.475298     0.46   0.647    -8.812985    13.89716
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.772               1                   0.3797
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  3.270583  Chi-sq( 9)  P-value =  .9526

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -5.256967   22.07598    -0.24   0.814    -51.03975    40.52581
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    22) =    0.32
            Prob > F =    0.7304

.
```

```
. regress D.polity_s l.polity_s l.Fiscal_Reliance L.5.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      25
-------------+------------------------------           F(  3,    21) =    0.37
       Model |  269.600166     3  89.8667221           Prob > F      =  0.7769
    Residual |  5130.39983    21  244.304754           R-squared     =  0.0499
-------------+------------------------------           Adj R-squared = -0.0858
       Total |        5400    24         225           Root MSE      =   15.63

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0475718   .1087075    -0.44   0.666    -.2736415    .1784979
Fiscal_Rel~e |
         L1. |   .1810536      .3993     0.45   0.655    -.6493362    1.011443
        L5D. |   .2179913   .3593429     0.61   0.551    -.5293031    .9652857
       _cons |    3.35876   5.619782     0.60   0.556    -8.328217    15.04574
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  4   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.038               1                   0.8457
---------------------------------------------------------------------------
                        H0: no serial correlation

. whitetst

White's general test statistic :  3.119507  Chi-sq( 9)  P-value =  .9594

. nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -3.805899   14.29278    -0.27   0.793    -33.52937    25.91757
------------------------------------------------------------------------------

. test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    21) =    0.33
            Prob > F =    0.7225

.
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -133.693   Log-Lik Full Model:           -133.055
D(28):                         266.110   LR(3):                           1.276
                                         Prob > LR:                       0.735
R2:                              0.039   Adjusted R2:                    -0.064
AIC:                             8.566   AIC*n:                         274.110
BIC:                           169.070   BIC':                            9.122
BIC used by Stata:             279.973   AIC used by Stata:             274.110

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:       -122.572   Log-Lik Full Model:           -120.661
D(24):                         241.322   LR(4):                           3.822
                                         Prob > LR:                       0.431
R2:                              0.123   Adjusted R2:                    -0.023
AIC:                             8.666   AIC*n:                         251.322
BIC:                           160.507   BIC':                            9.648
BIC used by Stata:             258.159   AIC used by Stata:             251.322

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -95.724   Log-Lik Full Model:            -90.424
D(20):                         180.847   LR(5):                          10.601
                                         Prob > LR:                       0.060
R2:                              0.335   Adjusted R2:                     0.169
AIC:                             7.417   AIC*n:                         192.847
BIC:                           115.685   BIC':                            5.689
BIC used by Stata:             200.396   AIC used by Stata:             192.847

(Indices saved in matrix fs_mod1)

quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -86.074   Log-Lik Full Model:            -78.538
D(16):                         157.077   LR(6):                          15.071
                                         Prob > LR:                       0.020
R2:                              0.481   Adjusted R2:                     0.286
AIC:                             7.438   AIC*n:                         171.077
BIC:                           106.909   BIC':                            3.741
BIC used by Stata:             179.025   AIC used by Stata:             171.077

(Indices saved in matrix fs_mod1)
```

```
quietly regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance
l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.4.d.Fiscal_Reliance

.
fitstat, saving(mod1)
likelihood information not found in last estimation results
r(321);
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F(  6,    16) =    2.47
       Model |  1152.64614     6   192.10769           Prob > F      =  0.0696
    Residual |  1245.17995    16  77.8237466           R-squared     =  0.4807
-------------+------------------------------           Adj R-squared =  0.2860
       Total |  2397.82609    22  108.992095           Root MSE      =  8.8218

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.0507879   .0610136    -0.83   0.417    -.1801309    .0785551
Fiscal_Rel~e |
         L1. |  -.5505057   .2318239    -2.37   0.030     -1.04195   -.0590609
         D1. |  -.0925606   .3328215    -0.28   0.784    -.7981106    .6129894
         LD. |   .4397537   .2493308     1.76   0.097    -.0888039    .9683114
        L2D. |   .0109223   .2380373     0.05   0.964    -.4936942    .5155389
        L3D. |  -.2158501    .237957    -0.91   0.378    -.7202964    .2885961
       _cons |   4.681446   3.251211     1.44   0.169    -2.210814    11.57371
------------------------------------------------------------------------------

bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          0.038               1                   0.8449
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        23  Chi-sq(22)  P-value =  .4017

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   10.83931   12.45518     0.87   0.397     -15.5645    37.24312
------------------------------------------------------------------------------

test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    16) =    2.83
            Prob > F =    0.0888

.

. test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0

       F(  4,    16) =    1.82
            Prob > F =    0.1743
```

```
regress D.polity_s l.polity_s l.Fiscal_Reliance d.Fiscal_Reliance l.d.Fiscal_Reliance
l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance l.log_gdp_per_cap_haber_men_2
l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE L.Civil_War_Gledistsch
d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

      Source |       SS       df       MS              Number of obs =      23
-------------+------------------------------           F( 12,    10) =    3.89
       Model |  1975.18909    12  164.599091           Prob > F      =  0.0195
    Residual |  422.636992    10  42.2636992           R-squared     =  0.8237
-------------+------------------------------           Adj R-squared =  0.6122
       Total |  2397.82609    22  108.992095           Root MSE      =  6.5011

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    polity_s |
         L1. |  -.6832459   .1876169    -3.64   0.005    -1.101282   -.2652094
Fiscal_Rel~e |
         L1. |   -.072027    .214089    -0.34   0.743    -.5490469     .404993
         D1. |  -.4791547   .2712812    -1.77   0.108    -1.083607    .1252976
         LD. |  -.3712227   .2748475    -1.35   0.207     -.983621    .2411756
        L2D. |  -.3297855   .1977393    -1.67   0.126    -.7703762    .1108051
        L3D. |  -.4483428   .1859363    -2.41   0.037    -.8626348   -.0340509
log_gdp_pe~2 |
         L1. |  -37.75028   39.02104    -0.97   0.356    -124.6946    49.19401
REGION_DEM~E |
         L1. |   .8993209   1.636301     0.55   0.595    -2.746586    4.545227
WORLD_DEM_~E |
         L1. |   2.009445   1.175628     1.71   0.118    -.6100166    4.628907
Civil_War_~h |
         L1. |  (dropped)
log_gdp_pe~2 |
         D1. |  -56.21907   36.36913    -1.55   0.153    -137.2545    24.81641
REGION_DEM~E |
         D1. |   .9659711   1.620543     0.60   0.564    -2.644825    4.576767
WORLD_DEM_~E |
         D1. |   .5280471   2.127588     0.25   0.809    -4.212514    5.268608
       _cons |   210.4778   298.9129     0.70   0.497    -455.5416    876.4973
------------------------------------------------------------------------------

. bgodfrey, lags (1)

Number of gaps in sample:  2   (gap count includes panel changes)

Breusch-Godfrey LM test for autocorrelation
---------------------------------------------------------------------------
    lags(p)  |          chi2               df                 Prob > chi2
-------------+-------------------------------------------------------------
       1     |          1.962               1                   0.1613
---------------------------------------------------------------------------
                        H0: no serial correlation

whitetst

White's general test statistic :        23  Chi-sq(22)  P-value =  .4017

nlcom _b[L.Fiscal_Reliance]/_b[L.polity_s]

       _nl_1:  _b[L.Fiscal_Reliance]/_b[L.polity_s]

------------------------------------------------------------------------------
  D.polity_s |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1054188   .3260118     0.32   0.753    -.6209807    .8318183
------------------------------------------------------------------------------
```

```
test l.polity_s l.Fiscal_Reliance

 ( 1)  L.polity_s = 0
 ( 2)  L.Fiscal_Reliance = 0

       F(  2,    10) =    8.55
            Prob > F =    0.0068

. test d.Fiscal_Reliance l.d.Fiscal_Reliance l.2.d.Fiscal_Reliance l.3.d.Fiscal_Reliance

 ( 1)  D.Fiscal_Reliance = 0
 ( 2)  LD.Fiscal_Reliance = 0
 ( 3)  L2D.Fiscal_Reliance = 0
 ( 4)  L3D.Fiscal_Reliance = 0

       F(  4,    10) =    1.98
            Prob > F =    0.1741

. test l.log_gdp_per_cap_haber_men_2 l.REGION_DEM_DIFFUSE l.WORLD_DEM_DIFFUSE
L.Civil_War_Gledistsch

 ( 1)  L.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  L.REGION_DEM_DIFFUSE = 0
 ( 3)  L.WORLD_DEM_DIFFUSE = 0
 ( 4)  L.Civil_War_Gledistsch = 0
       Constraint 4 dropped

       F(  3,    10) =    6.36
            Prob > F =    0.0110

. test d.log_gdp_per_cap_haber_men_2 d.REGION_DEM_DIFFUSE d.WORLD_DEM_DIFFUSE

 ( 1)  D.log_gdp_per_cap_haber_men_2 = 0
 ( 2)  D.REGION_DEM_DIFFUSE = 0
 ( 3)  D.WORLD_DEM_DIFFUSE = 0

       F(  3,    10) =    0.94
            Prob > F =    0.4594

.
fitstat, saving(mod1)

Measures of Fit for regress of D.polity_s

Log-Lik Intercept Only:        -86.074   Log-Lik Full Model:            -66.112
D(9):                          132.225   LR(12):                         39.923
                                         Prob > LR:                       0.000
R2:                              0.824   Adjusted R2:                     0.612
AIC:                             6.966   AIC*n:                         160.225
BIC:                           104.005   BIC':                           -2.298
BIC used by Stata:             172.986   AIC used by Stata:             158.225

(Indices saved in matrix fs_mod1)
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1790
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =      3.22
maximum lag: 1                                   Prob > F          =    0.0035
                                                 R-squared         =    0.1288
                                                 Root MSE          =    6.4729

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0545837   .0098986    -5.51   0.000    -.0754679   -.0336996
L_Fiscal_R~p |   .0001962   .0095178     0.02   0.984    -.0198845    .0202769
FD_Fiscal_~p |   .0248337   .0171105     1.45   0.165    -.0112663    .0609337

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0035945   .1743038    -0.02   0.984    -.3713434    .3641544
```

quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp year i.hmccode i.year, cluster(hmccode)

```
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5885.582   Log-Lik Full Model:          -5762.137
D(1562):                     11524.275   LR(17):                        246.889
                                         Prob > LR:                       0.000
R2:                              0.129   Adjusted R2:                     0.004
AIC:                             6.693   AIC*n:                       11980.275
BIC:                          -175.060   BIC':                         -119.559
BIC used by Stata:           11659.094   AIC used by Stata:           11560.275

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1772
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(228,    17)     =      7.88
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1308
                                                 Root MSE          =    6.3512

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0528568   .0099787    -5.30   0.000    -.0739099   -.0318037
L_Fiscal_R~p |   .0014303   .0104895     0.14   0.893    -.0207005    .0235612
FD_Fiscal_~p |   .0297093   .0192955     1.54   0.142    -.0110007    .0704193
L_D_Fiscal~p |   -.017779   .0322545    -0.55   0.589    -.0858301    .0502721


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0270604   .1979686    -0.14   0.893    -.4447376    .3906168
------------------------------------------------------------------------------


quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5793.462   Log-Lik Full Model:         -5669.265
D(1543):                     11338.529   LR(16):                       248.394
                                         Prob > LR:                      0.000
R2:                              0.131   Adjusted R2:                    0.004
AIC:                             6.657   AIC*n:                      11796.529
BIC:                          -202.901   BIC':                        -128.716
BIC used by Stata:           11465.687   AIC used by Stata:          11372.529

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.Fiscal Reliance

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1754
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(229,    17)     =      3.99
maximum lag: 1                                   Prob > F          =    0.0009
                                                 R-squared         =    0.1334
                                                 Root MSE          =    6.3730

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0523602   .0101084    -5.18   0.000    -.0736871   -.0310333
L_Fiscal_R~p |   6.17e-06   .0106446     0.00   1.000    -.0224521    .0224644
FD_Fiscal_~p |   .0310424    .021192     1.46   0.161    -.0136689    .0757536
L_D_Fiscal~p |  -.0175163   .0347829    -0.50   0.621    -.0909018    .0558692
L_2_D_Fisc~p |    .047483   .0277673     1.71   0.105    -.0111008    .1060668

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0001178    .203294    -0.00   1.000    -.4290306     .428795
------------------------------------------------------------------------------


quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5741.925   Log-Lik Full Model:          -5616.384
D(1524):                     11232.768   LR(16):                        251.082
                                         Prob > LR:                       0.000
R2:                              0.133   Adjusted R2:                     0.006
AIC:                             6.666   AIC*n:                       11692.768
BIC:                          -150.985   BIC':                         -131.567
BIC used by Stata:           11359.752   AIC used by Stata:           11266.768

(Indices saved in matrix fs_mod1)
```

```
3 LAGS OF D.Fiscal Reliance

xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1736
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(230,    17)     =    375.23
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1337
                                                 Root MSE          =    6.3971

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |   -.052764   .0103348    -5.11   0.000    -.0745685   -.0309596
L_Fiscal_R~p |   .0004932   .0104064     0.05   0.963    -.0214624    .0224488
FD_Fiscal_~p |   .0317105   .0208481     1.52   0.147    -.0122751     .075696
L_D_Fiscal~p |  -.0119772   .0351468    -0.34   0.737    -.0861305    .0621761
L_2_D_Fisc~p |    .043683   .0283196     1.54   0.141    -.0160661    .1034321
L_3_D_Fisc~l |  -.0143786   .0284842    -0.50   0.620     -.074475    .0457177


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0093476    .197101    -0.05   0.963    -.4251943    .4064991
------------------------------------------------------------------------------



quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel
i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5688.497   Log-Lik Full Model:         -5563.963
D(1505):                     11127.927   LR(17):                       249.068
                                         Prob > LR:                      0.000
R2:                              0.134   Adjusted R2:                    0.005
AIC:                             6.676   AIC*n:                      11589.927
BIC:                           -98.378   BIC':                        -122.259
BIC used by Stata:           11269.654   AIC used by Stata:          11165.927

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.Fiscal Reliance

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel L_4_D_Fiscal_Rel i.hmccode
i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1718
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(231,    17)     =     45.74
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1360
                                                 Root MSE          =    6.4255

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0529705   .0104765    -5.06   0.000     -.075074    -.030867
L_Fiscal_R~p |    -.00168    .010527    -0.16   0.875     -.02389      .02053
FD_Fiscal_~p |   .0306013   .0212297     1.44   0.168    -.0141895    .0753921
L_D_Fiscal~p |  -.0114575   .0351129    -0.33   0.748    -.0855392    .0626243
L_2_D_Fisc~p |   .0488938   .0286446     1.71   0.106     -.011541    .1093287
L_3_D_Fisc~l |  -.0108526   .0279451    -0.39   0.703    -.0698115    .0481063
L_4_D_Fisc~l |    .015959   .0278904     0.57   0.575    -.0428846    .0748027

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0317155   .1992306     0.16   0.875    -.3886243    .4520553
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel
L_4_D_Fiscal_Rel i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5638.116   Log-Lik Full Model:          -5512.543
D(1486):                     11025.087   LR(17):                        251.145
                                         Prob > LR:                       0.000
R2:                              0.136   Adjusted R2:                     0.006
AIC:                             6.687   AIC*n:                       11489.087
BIC:                           -44.002   BIC':                         -124.514
BIC used by Stata:           11166.616   AIC used by Stata:           11063.087

(Indices saved in matrix fs_mod1)

.
```

5 LAGS OF D.Fiscal Reliance

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel L_4_D_Fiscal_Rel
L_5_D_Fiscal_Rel i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1700
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(232,    17)     =     30.36
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1363
                                                 Root MSE          =    6.4529

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |   -.052875   .0107195    -4.93   0.000    -.0754912   -.0302588
L_Fiscal_R~p |  -.0022521   .0114599    -0.20   0.847    -.0264305    .0219262
FD_Fiscal_~p |   .0321444   .0221041     1.45   0.164    -.0144911    .0787799
L_D_Fiscal~p |  -.0101228   .0356519    -0.28   0.780    -.0853417    .0650961
L_2_D_Fisc~p |   .0497038    .028657     1.73   0.101    -.0107572    .1101648
L_3_D_Fisc~l |  -.0108726   .0261857    -0.42   0.683    -.0661196    .0443744
L_4_D_Fisc~l |   .0180462   .0287553     0.63   0.539    -.0426221    .0787145
L_5_D_Fisc~l |   .0111881   .0351983     0.32   0.754    -.0630738    .0854499


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0425935   .2176676     0.20   0.847     -.416645     .501832
------------------------------------------------------------------------------


. quietly xi: regress D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp
> L_3_D_Fiscal_Rel L_4_D_Fiscal_Rel L_5_D_Fiscal_Rel i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_interp

Log-Lik Intercept Only:      -5585.187   Log-Lik Full Model:         -5460.654
D(1467):                     10921.309   LR(17):                       249.066
                                         Prob > LR:                      0.000
R2:                              0.136   Adjusted R2:                    0.004
AIC:                             6.698   AIC*n:                      11387.309
BIC:                             9.200   BIC':                        -122.613
BIC used by Stata:           11055.199   AIC used by Stata:          10957.309

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 4, COLUMNS 1-5 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_Fiscal_Reliance]/_b[L_polity_s_interp]

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH 1 lag of Fiscal Reliance in differences. Therefore, those are the type of ECM Models we run below.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

NOTA BENE:

In this file we document several experiments using different lags of Fiscal Reliance in differences in order to ensure robustness. These experiments are conducted without control variables.

```
The following series contain holes:

----------------------
  hmccode |      Freq.
----------+-----------
       70 |          3
      155 |          1
      385 |          2
      411 |          1
      540 |          1
      551 |          3
      615 |          3
      630 |          5
      679 |          1
      690 |          1
      698 |          3
----------------------
```

We therefore performed Linear Interpolation

We also performed linear interpolation for some of the country Polity series.

by hmccode: ipolate Fiscal_Reliance year, gen(Fiscal_Reliance_interpolate)

by hmccode: ipolate polity_s year, gen(polity_s_interpolate)

keep if Fiscal_Reliance_interpolate != . & cnamehabmen != "Saudi Arabia"

keep if polity_s_interpolate != .

Linear interpolation used for:

Mexico, Chile, Norway, Equatorial Guinea, Angola, Zambia, Algeria, Iran, Yemen, Kuwait, Oman.

The reason for this is that the Westerlund Cointegration Tests demands no gaps in the time-series.

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(0) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.210  |   -4.404  |   0.000   |      0.000     |
     Ga    |  -11.014  |    0.623  |   0.733   |      0.160     |
     Pt    |  -11.425  |   -2.816  |   0.002   |      0.420     |
     Pa    |  -14.177  |   -3.629  |   0.000   |      0.260     |
----------------------------------------------------------------+
```

THIS IS A BASELINE REGRESSION WITH NO CONTROLS AND NO LAGS OF FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1790
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =      3.22
maximum lag: 1                                   Prob > F          =    0.0035
                                                 R-squared         =    0.1288
                                                 Root MSE          =    6.4729

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0545837   .0098986    -5.51   0.000    -.0754679   -.0336996
L_Fiscal_R~p |   .0001962   .0095178     0.02   0.984    -.0198845    .0202769
FD_Fiscal_~p |   .0248337   .0171105     1.45   0.165    -.0112663    .0609337


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0035945   .1743038    -0.02   0.984    -.3713434    .3641544
```

ONE LAG OF DIFFERENCED FISCAL RELIANCE

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(1) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

---------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.422  |   -0.290  |   0.386   |      0.140     |
     Ga    |  -12.230  |   -0.136  |   0.446   |      0.080     |
     Pt    |  -11.219  |   -2.580  |   0.005   |      0.280     |
     Pa    |  -14.901  |   -4.130  |   0.000   |      0.200     |
---------------------------------------------------------------+
```

INCLUDING BOTH FISCAL RELIANCE IN DIFFERENCES AND ONE LAG OF FISCAL RELIANCE IN DIFFERENCES

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1772
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(228,    17)     =      7.88
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1308
                                                 Root MSE          =    6.3512

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0528568   .0099787    -5.30   0.000    -.0739099   -.0318037
L_Fiscal_R~p |   .0014303   .0104895     0.14   0.893    -.0207005    .0235612
FD_Fiscal_~p |   .0297093   .0192955     1.54   0.142    -.0110007    .0704193
L_D_Fiscal~p |   -.017779   .0322545    -0.55   0.589    -.0858301    .0502721

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0270604   .1979686    -0.14   0.893    -.4447376    .3906168
------------------------------------------------------------------------------
```

RERUNNING WITHOUT THE OTHER FISCAL RELIANCE DIFFERENCED TERMS

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp year i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1772
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =      8.09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1301
                                                 Root MSE          =    6.3516

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0531893   .0099855    -5.33   0.000    -.0742568   -.0321218
L_Fiscal_R~p |  -.0004094   .0104087    -0.04   0.969    -.0223699    .0215511
L_D_Fiscal~p |  -.0178964   .0320469    -0.56   0.584    -.0855095    .0497167


. nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0076965   .1958384     0.04   0.969    -.4054864    .4208795
------------------------------------------------------------------------------
```

TWO LAGS OF DIFFERENCED FISCAL RELIANCE

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(2) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.600	-1.218	0.112	0.040
Ga	-12.823	-0.506	0.306	0.060
Pt	-11.542	-2.950	0.002	0.060
Pa	-14.923	-4.145	0.000	0.100

TWO LAGS OF DIFFERENCED FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1754
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(229,    17)     =      3.99
maximum lag: 1                                   Prob > F          =    0.0009
                                                 R-squared         =    0.1334
                                                 Root MSE          =    6.3730

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0523602   .0101084    -5.18   0.000    -.0736871   -.0310333
L_Fiscal_R~p |   6.17e-06   .0106446     0.00   1.000    -.0224521    .0224644
FD_Fiscal_~p |   .0310424    .021192     1.46   0.161    -.0136689    .0757536
L_D_Fiscal~p |  -.0175163   .0347829    -0.50   0.621    -.0909018    .0558692
L_2_D_Fisc~p |    .047483   .0277673     1.71   0.105    -.0111008    .1060668

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0001178    .203294    -0.00   1.000    -.4290306     .428795
------------------------------------------------------------------------------
```

RERUNNING AFTER DROPPING THE OTHER DIFFERENCED TERMS

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp L_2_D_Fiscal_Rel_Interp
year i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1754
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =      3.59
maximum lag: 1                                   Prob > F          =    0.0018
                                                 R-squared         =    0.1324
                                                 Root MSE          =    6.3723

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0527054   .0101138    -5.21   0.000    -.0740437   -.0313671
L_Fiscal_R~p |  -.0028899   .0096014    -0.30   0.767     -.023147    .0173672
L_2_D_Fisc~p |   .0460539    .025826     1.78   0.092    -.0084342     .100542

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0548314   .1831778     0.30   0.768    -.3316399    .4413027
------------------------------------------------------------------------------
```

THREE LAGS

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(3) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.449	-0.434	0.332	0.080
Ga	-13.654	-1.025	0.153	0.020
Pt	-11.817	-3.265	0.001	0.040
Pa	-15.037	-4.224	0.000	0.060

.

3 LAGS OF FISCAL RELIANCE DIFFERENCED

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1736
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(230,    17)     =    375.23
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1337
                                                 Root MSE          =    6.3971

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |   -.052764   .0103348    -5.11   0.000    -.0745685   -.0309596
L_Fiscal_R~p |   .0004932   .0104064     0.05   0.963    -.0214624    .0224488
FD_Fiscal_~p |   .0317105   .0208481     1.52   0.147    -.0122751     .075696
L_D_Fiscal~p |  -.0119772   .0351468    -0.34   0.737    -.0861305    .0621761
L_2_D_Fisc~p |    .043683   .0283196     1.54   0.141    -.0160661    .1034321
L_3_D_Fisc~l |  -.0143786   .0284842    -0.50   0.620     -.074475    .0457177

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0093476    .197101    -0.05   0.963    -.4251943    .4064991
------------------------------------------------------------------------------
```

RERUNNING WITH THE OTHER DIFFERENCED TERMS OMITTED

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp L_3_D_Fiscal_Rel
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1736
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =      4.08
maximum lag: 1                                   Prob > F          =    0.0008
                                                 R-squared         =    0.1315
                                                 Root MSE          =    6.3988

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0532783   .0103776    -5.13   0.000    -.0751732   -.0313834
L_Fiscal_R~p |   .0005568   .0093605     0.06   0.953    -.0191922    .0203058
L_3_D_Fisc~l |  -.0149123   .0296969    -0.50   0.622    -.0775674    .0477427


. nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -.01045   .1755951    -0.06   0.953    -.3809232    .3600232
------------------------------------------------------------------------------
```

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(4) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.571  |   -1.068  |   0.143   |      0.020     |
     Ga    |  -13.261  |   -0.779  |   0.218   |      0.020     |
     Pt    |  -11.345  |   -2.724  |   0.003   |      0.120     |
     Pa    |  -14.114  |   -3.585  |   0.000   |      0.120     |
----------------------------------------------------------------+
```

FOUR LAGS OF FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp  FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel L_4_D_Fiscal_Rel year
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1718
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(231,    17)     =     45.74
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1360
                                                 Root MSE          =    6.4255

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0529705   .0104765    -5.06   0.000     -.075074    -.030867
L_Fiscal_R~p |    -.00168    .010527    -0.16   0.875       -.02389      .02053
FD_Fiscal_~p |   .0306013   .0212297     1.44   0.168    -.0141895    .0753921
L_D_Fiscal~p |  -.0114575   .0351129    -0.33   0.748    -.0855392    .0626243
L_2_D_Fisc~p |   .0488938   .0286446     1.71   0.106     -.011541    .1093287
L_3_D_Fisc~l |  -.0108526   .0279451    -0.39   0.703    -.0698115    .0481063
L_4_D_Fisc~l |    .015959   .0278904     0.57   0.575    -.0428846    .0748027

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0317155   .1992306     0.16   0.875    -.3886243    .4520553
------------------------------------------------------------------------------
```

DROPPING THE OTHER DIFFERENCED FISCAL RELIANCE TERMS

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp L_4_D_Fiscal_Rel
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1718
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =     13.42
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1335
                                                 Root MSE          =    6.4262

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0535258   .0105171    -5.09   0.000    -.0757149   -.0313368
L_Fiscal_R~p |  -.0014273   .0097795    -0.15   0.886    -.0220603    .0192057
L_4_D_Fisc~l |   .0107522   .0278165     0.39   0.704    -.0479355    .0694399

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0266656   .1831405     0.15   0.886    -.3597271    .4130584
------------------------------------------------------------------------------

.
```

5 LAGS OF FISCAL RELIANCE

```
xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(5) leads(1)
lrwindow(8) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.265  |    0.528  |   0.701   |      0.280     |
     Ga    |  -13.774  |   -1.099  |   0.136   |      1.000     |
     Pt    |  -10.644  |   -1.923  |   0.027   |      0.000     |
     Pa    |  -13.662  |   -3.273  |   0.001   |      1.000     |
----------------------------------------------------------------+

.
```

5 LAGS OF FISCAL RELIANCE

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_2_D_Fiscal_Rel_Interp L_3_D_Fiscal_Rel L_4_D_Fiscal_Rel
L_5_D_Fiscal_Rel i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1700
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(232,    17)     =     30.36
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1363
                                                 Root MSE          =    6.4529

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |   -.052875   .0107195    -4.93   0.000    -.0754912   -.0302588
L_Fiscal_R~p |  -.0022521   .0114599    -0.20   0.847    -.0264305    .0219262
FD_Fiscal_~p |   .0321444   .0221041     1.45   0.164    -.0144911    .0787799
L_D_Fiscal~p |  -.0101228   .0356519    -0.28   0.780    -.0853417    .0650961
L_2_D_Fisc~p |   .0497038    .028657     1.73   0.101    -.0107572    .1101648
L_3_D_Fisc~l |  -.0108726   .0261857    -0.42   0.683    -.0661196    .0443744
L_4_D_Fisc~l |   .0180462   .0287553     0.63   0.539    -.0426221    .0787145
L_5_D_Fisc~l |   .0111881   .0351983     0.32   0.754    -.0630738    .0854499


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0425935   .2176676     0.20   0.847     -.416645     .501832
------------------------------------------------------------------------------
```

RERUNNING WITHOUT THE DIFFERENCED TERMS

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp L_5_D_Fiscal_Rel
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1700
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =     42.67
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1336
                                                 Root MSE          =    6.4521

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0534588   .0107593    -4.97   0.000    -.0761589   -.0307587
L_Fiscal_R~p |  -.0012899    .010409    -0.12   0.903     -.023251    .0206713
L_5_D_Fisc~l |   .0111887   .0364762     0.31   0.763    -.0657693    .0881468


nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0241285     .19531     0.12   0.903    -.3879396    .4361966
------------------------------------------------------------------------------
```

ADDING CONTROLS TO THE DISTRIBUTED LAG MODEL THAT WAS CHOSEN

```
xtwest polity_s_interpolate Fiscal_Rel_Interp Log_GDP_PC Civil_War_Gledistsch
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-3.071	-0.258	0.398	0.160
Ga	-11.299	3.665	1.000	0.620
Pt	-12.245	-0.428	0.334	0.240
Pa	-12.933	1.292	0.902	0.420

```
xtwest polity_s_interpolate Fiscal_Rel_Interp Log_GDP_PC Civil_War_Gledistsch
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.598	1.918	0.972	0.500
Ga	-10.881	3.857	1.000	0.480
Pt	-9.813	2.015	0.978	0.540
Pa	-10.117	2.617	0.996	0.500

RUNNING THE DISTRIBUTED LAG MODEL CHOSEN WITH THE CONTROL VARIABLES, TABLE 4, COLUMN 2

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp L_logGDPPERCAP L_CivilWar L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_GDPPERCAP D_RegionalDiffusion D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1121
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(235,    17)     =     11.04
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1704
                                                 Root MSE          =    7.4279

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |   -.107119   .0213856    -5.01   0.000    -.1522386   -.0619993
L_Fiscal_R~p |   .0279433    .018025     1.55   0.139     -.010086    .0659727
FD_Fiscal_~p |   .0485289   .0194224     2.50   0.023     .0075512    .0895067
L_D_Fiscal~p |   -.029833   .0347918    -0.86   0.403    -.1032374    .0435713
L_logGDPPE~P |   .5929553   .7340087     0.81   0.430    -.9556676    2.141578
  L_CivilWar |   1.477247   1.187621     1.24   0.230    -1.028415    3.982909
L_REGION_D~E |   .0102447   .0203622     0.50   0.621    -.0327158    .0532052
L_WORLD_DE~E |  -.0599207   .0393488    -1.52   0.146    -.1429394    .0230981
 D_GDPPERCAP |  -3.500399   3.275009    -1.07   0.300    -10.41006    3.409267
D_Regional~n |   .1704365   .0707116     2.41   0.028     .0212482    .3196249
D_WORLD_DE~E |   .0947188   .0997054     0.95   0.355    -.1156413    .3050788
```

```
. nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2608626   .1430812    -1.82   0.086    -.5627374    .0410123
------------------------------------------------------------------------------
```

RERUNNING WITHOUT THE LAG DIFFERENCED FISCAL RELIANCE MAKES NO DIFFERENCE TO THE RESULTS

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp
L_logGDPPERCAP L_CivilWar L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE  D_GDPPERCAP
D_RegionalDiffusion D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1132
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(234,    17)     =      7.78
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1670
                                                 Root MSE          =    7.6012

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.1088401   .0209022    -5.21   0.000      -.15294   -.0647403
L_Fiscal_R~p |   .0217554   .0161931     1.34   0.197     -.012409    .0559197
FD_Fiscal_~p |    .041732   .0188326     2.22   0.041     .0019987    .0814653
L_logGDPPE~P |   .8945857   .7432113     1.20   0.245     -.673453    2.462624
  L_CivilWar |   1.429344   1.181224     1.21   0.243     -1.06282    3.921508
L_REGION_D~E |   .0114966    .020805     0.55   0.588    -.0323982    .0553914
L_WORLD_DE~E |   -.048717   .0363594    -1.34   0.198    -.1254287    .0279947
 D_GDPPERCAP |  -3.580927   3.355568    -1.07   0.301    -10.66056    3.498702
D_Regional~n |    .167386   .0759235     2.20   0.042     .0072014    .3275706
D_WORLD_DE~E |   .1249294     .10215     1.22   0.238    -.0905882    .3404469

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1998838   .1296194    -1.54   0.141    -.4733569    .0735893
------------------------------------------------------------------------------

.
```

RUNNING THE DISTRIBUTED LAG MODEL CHOSEN (1 lag of Differenced Fiscal Reliance) with a lag of the Dependent Variable (Differenced Polity) instead of Newey West technique

```
xi: xtscc D_polity_interp L_D_polity_s_interp L_Polity_s_interp L_Fiscal_Rel_interp
FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_logGDPPERCAP L_CivilWar L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_GDPPERCAP D_RegionalDiffusion D_WORLD_DEM_DIFFUSE i.year
i.hmccode, lag(0)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1121
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(236,    17)     =    181.04
maximum lag: 0                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1801
                                                 Root MSE          =    7.3886

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D~s_interp |   .1052913      .03656     2.88   0.010     .0281565    .1824261
L_Polity_s~p |  -.1188418    .0248194    -4.79   0.000     -.171206   -.0664775
L_Fiscal_R~p |   .0307095    .0182817     1.68   0.111    -.0078615    .0692806
FD_Fiscal_~p |   .0456028    .0211086     2.16   0.045     .0010675    .0901381
L_D_Fiscal~p |   -.035695     .035623    -1.00   0.330     -.110853    .0394629
L_logGDPPE~P |   .5011595    .6854817     0.73   0.475    -.9450804    1.947399
  L_CivilWar |   1.853623    1.303501     1.42   0.173    -.8965239    4.603771
L_REGION_D~E |   .0192629    .0208914     0.92   0.369     -.024814    .0633398
L_WORLD_DE~E |  -.0774524      .03816    -2.03   0.058    -.1579629    .0030581
 D_GDPPERCAP |  -3.468472    3.417565    -1.01   0.324     -10.6789     3.74196
D_Regional~n |   .1560266    .0697888     2.24   0.039      .008785    .3032682
D_WORLD_DE~E |   .0966649    .0902263     1.07   0.299     -.093696    .2870258

nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.258407    .1286941    -2.01   0.061    -.5299279    .0131139
------------------------------------------------------------------------------
```

RUNNING THE DISTRIBUTED LAG MODEL CHOSEN (1 lag of Differenced Fiscal Reliance) with a lag of the Dependent Variable (Differenced Polity) and RSE clustered by year

```
xi: regress D_polity_interp L_D_polity_s_interp L_Polity_s_interp
L_Fiscal_Rel_interp FD_Fiscal_Rel_interp L_D_Fiscal_Rel_Interp L_logGDPPERCAP
L_CivilWar L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE  D_GDPPERCAP
D_RegionalDiffusion D_WORLD_DEM_DIFFUSE i.year i.hmccode, cluster(year)
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)

Linear regression                                      Number of obs =    1121
                                                       F( 26,   144) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.1801
                                                       Root MSE      =  7.3886

                                 (Std. Err. adjusted for 145 clusters in year)
------------------------------------------------------------------------------
             |               Robust
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D~s_interp |   .1052913   .0398552     2.64   0.009     .0265146     .184068
L_Polity_s~p |  -.1188418   .0270563    -4.39   0.000    -.1723207   -.0653629
L_Fiscal_R~p |   .0307095   .0199295     1.54   0.126    -.0086825    .0701016
FD_Fiscal_~p |   .0456028   .0230112     1.98   0.049     .0001195    .0910861
L_D_Fiscal~p |   -.035695   .0388337    -0.92   0.360    -.1124528    .0410628
L_logGDPPE~P |   .5011595   .7472648     0.67   0.504    -.9758654    1.978184
  L_CivilWar |   1.853623   1.420987     1.30   0.194    -.9550642    4.662311
L_REGION_D~E |   .0192629   .0227743     0.85   0.399    -.0257522     .064278
L_WORLD_DE~E |  -.0069312   .0324766    -0.21   0.831    -.0711236    .0572613
 D_GDPPERCAP |  -3.468472   3.725593    -0.93   0.353    -10.83239    3.895443
D_Regional~n |   .1560266    .076079     2.05   0.042     .0056508    .3064024
D_WORLD_DE~E |   -.075912   .0562087    -1.35   0.179    -.1870127    .0351887


. nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.258407   .1402935    -1.84   0.068    -.5357076    .0188935
------------------------------------------------------------------------------
```

RUNNING AGAIN WITHOUT THE CONTROL VARIABLES

DISTRIBUTED LAG MODEL WITH THE DATASET TRUNCATED TO OBSERVATIONS ON PER CAPITA INCOME

CONSTRUCTING THE CONTROL VARIABLES DATASET USED TO RUN THE MODEL, IN ORDER TO BE ABLE TO COMPARE TO THE CONTROL VARIABLE SPECIFICATIONS

```
keep if log_gdp_per_cap_haber_men_2 != . & Civil_War_Gledistsch != . & REGION_DEM_DIFFUSE
!= . & WORLD_DEM_DIFFUSE != .
(658 observations deleted)


xtwest polity_s_interpolate Fiscal_Rel_Interp, constant trend lags(1) leads(1)
lrwindow(7) bootstrap(50)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

--------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+------------+-----------+-----------+----------------|
     Gt    |   -2.372   |   -0.031  |   0.488   |      0.280     |
     Ga    |  -10.561   |    0.905  |   0.817   |      0.380     |
     Pt    |   -9.202   |   -0.274  |   0.392   |      0.520     |
     Pa    |  -10.499   |   -1.084  |   0.139   |      0.400     |
--------------------------------------------------------------+

.
```

RUNNING WITHOUT THE CONTROL VARIABLES INCLUDED, BUT ON THE CONTROL VARIABLE (TRUNCATED) DATASET

```
xi: xtscc D_polity_interp L_Polity_s_interp L_Fiscal_Rel_interp FD_Fiscal_Rel_interp
L_D_Fiscal_Rel_Interp i.year i.hmccode if D_polity_interp !=. & L_Polity_s_interp !=. &
L_Fiscal_Rel_interp !=. & FD_Fiscal_Rel_interp != . & L_logGDPPERCAP != . & L_CivilWar !=
. & L_REGION_DEM_DIFFUSE != . & L_WORLD_DEM_DIFFUSE != . & D_GDPPERCAP != . &
D_RegionalDiffusion != . & D_WORLD_DEM_DIFFUSE != ., lag(1)
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_52-850    (naturally coded; _Ihmccode_52 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1121
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(228,    17)     =    174.86
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1632
                                                 Root MSE          =    7.4406

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Polity_s~p |  -.0985604    .018787    -5.25   0.000    -.1381974   -.0589233
L_Fiscal_R~p |   .0304757   .0142399     2.14   0.047     .0004322    .0605192
FD_Fiscal_~p |   .0431079   .0191307     2.25   0.038     .0027455    .0834702
L_D_Fiscal~p |  -.0358339   .0337439    -1.06   0.303    -.1070272    .0353595



. nlcom _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

       _nl_1:  _b[L_Fiscal_Rel_interp]/_b[L_Polity_s_interp]

------------------------------------------------------------------------------
D_polity_i~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3092085   .1234074    -2.51   0.023    -.5695753   -.0488417
------------------------------------------------------------------------------

.
```

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     14260
Method: Pooled OLS                               Number of groups  =       164
Group variable (i): hmccode                      F(399,   163)     =  5.50e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0603
                                                 Root MSE          =    7.3183

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0644265    .005355   -12.03   0.000    -.0750007   -.0538523
L_tot_oil_~p |   .0197312   .0114292     1.73   0.086    -.0028371    .0422995
D_tot_oil_~p |   -.028888   .0226237    -1.28   0.203    -.0735613    .0157853



nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3062592   .1686604    -1.82   0.071    -.6393001    .0267817
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -48871.894   Log-Lik Full Model:         -48428.459
D(13860):                    96856.918   LR(130):                       886.871
                                         Prob > LR:                       0.000
R2:                              0.060   Adjusted R2:                     0.035
AIC:                             6.848   AIC*n:                       97656.918
BIC:                        -35716.944   BIC':                          356.607
BIC used by Stata:           98109.961   AIC used by Stata:           97118.918

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     14122
Method: Pooled OLS                               Number of groups  =       164
Group variable (i): hmccode                      F(400,   163)     =  2.10e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0606
                                                 Root MSE          =    7.3292

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0647613   .0053626   -12.08   0.000    -.0753504   -.0541722
L_tot_oil_~p |   .0184222   .0138266     1.33   0.185    -.0088801    .0457245
D_tot_oil_~p |   -.031096   .0231404    -1.34   0.181    -.0767896    .0145977
 L_D_TOI_INT |   -.005282   .0201946    -0.26   0.794    -.0451588    .0345947

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2844636   .2059319    -1.38   0.169    -.6911019    .1221747
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT year i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -48419.984   Log-Lik Full Model:         -47978.362
D(13721):                    95956.724   LR(129):                       883.244
                                         Prob > LR:                       0.000
R2:                              0.061   Adjusted R2:                     0.035
AIC:                             6.852   AIC*n:                       96758.724
BIC:                        -35154.142   BIC':                          349.414
BIC used by Stata:           97208.493   AIC used by Stata:           96218.724

(Indices saved in matrix fs_mod1)
```

```
2 LAGS OF D.TOTAL OIL INCOME

This regression excludes Bosnia and Herzegovina, which is observed between 1992 and 1994,
because these three observations are not sufficient when estimating 2 lags.

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     13983
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(401,   162)     =  6.92e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0615
                                                 Root MSE          =    7.3459

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0654404   .0054171   -12.08   0.000    -.0761377   -.0547431
L_tot_oil_~p |   .0160446   .0124405     1.29   0.199    -.0085219    .0406111
D_tot_oil_~p |  -.0355401   .0196446    -1.81   0.072    -.0743325    .0032523
 L_D_TOI_INT |  -.0034639   .0171265    -0.20   0.840     -.037284    .0303561
L2_D_TOI_INT |   .0128904   .0248721     0.52   0.605    -.0362249    .0620057

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2451794   .1826767    -1.34   0.181     -.605914    .1155552
------------------------------------------------------------------------------
```

xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, r cluster(ccode)

```
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -47853.969   Log-Lik Full Model:        -47410.910
D(13538):                    94821.819   LR(136):                      886.119
                                         Prob > LR:                      0.000
R2:                              0.062   Adjusted R2:                    0.036
AIC:                             6.860   AIC*n:                      95625.819
BIC:                        -34364.785   BIC':                         411.663
BIC used by Stata:           96186.399   AIC used by Stata:          95107.819

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     13842
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(402,   162)     =  9.64e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0614
                                                 Root MSE          =    7.3432

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0654532    .005409   -12.10   0.000    -.0761344   -.0547719
L_tot_oil_~p |   .0135596   .0144371     0.94   0.349    -.0149496    .0420688
D_tot_oil_~p |   -.035037   .0191459    -1.83   0.069    -.0728447    .0027707
 L_D_TOI_INT |  -.0028662   .0186263    -0.15   0.878    -.0396479    .0339155
L2_D_TOI_INT |   .0152688   .0269685     0.57   0.572    -.0379862    .0685239
L3_D_TOI_INT |   .0144922    .018592     0.78   0.437    -.0222217     .051206


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2071652   .2143476    -0.97   0.335    -.6304407    .2161103
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -47487.788   Log-Lik Full Model:         -47049.180
D(13439):                    94098.359   LR(130):                       877.217
                                         Prob > LR:                       0.000
R2:                              0.061   Adjusted R2:                     0.035
AIC:                             6.856   AIC*n:                       94904.359
BIC:                        -34048.724   BIC':                          362.393
BIC used by Stata:           95357.040   AIC used by Stata:           94362.359

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     13696
Method: Pooled OLS                               Number of groups  =       162
Group variable (i): hmccode                      F(403,   161)     =  2.96e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0613
                                                 Root MSE          =    7.3195

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0648644   .0053346   -12.16   0.000    -.0753992   -.0543295
L_tot_oil_~p |   .0162963   .0141166     1.15   0.250    -.0115812    .0441739
D_tot_oil_~p |   -.036077     .02179    -1.66   0.100    -.0791081    .0069541
 L_D_TOI_INT |  -.0042342   .0187509    -0.23   0.822    -.0412637    .0327952
L2_D_TOI_INT |   .0126265   .0271566     0.46   0.643    -.0410027    .0662557
L3_D_TOI_INT |    .012625   .0177678     0.71   0.478     -.022463    .0477131
L4_D_TOI_INT |  -.0118321   .0204431    -0.58   0.564    -.0522034    .0285391

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2512372   .2110107    -1.19   0.236    -.6679428    .1654683
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -46939.576   Log-Lik Full Model:        -46506.557
D(13292):                    93013.114   LR(132):                      866.038
                                         Prob > LR:                      0.000
R2:                              0.061   Adjusted R2:                    0.035
AIC:                             6.850   AIC*n:                      93821.114
BIC:                        -33591.313   BIC':                         391.243
BIC used by Stata:           94279.921   AIC used by Stata:          93279.114

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year if
hmccode, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     13551
Method: Pooled OLS                               Number of groups  =       162
Group variable (i): hmccode                      F(404,   161)     =  8.40e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0617
                                                 Root MSE          =    7.2927

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0645883   .0053958   -11.97   0.000     -.075244   -.0539325
L_tot_oil_~p |   .0094525   .0156264     0.60   0.546    -.0214066    .0403116
D_tot_oil_~p |  -.0523758    .031997    -1.64   0.104    -.1155636    .0108121
 L_D_TOI_INT |   .0058173    .017778     0.33   0.744    -.0292909    .0409256
L2_D_TOI_INT |   .0167673   .0238506     0.70   0.483    -.0303331    .0638676
L3_D_TOI_INT |   .0195086   .0145622     1.34   0.182     -.009249    .0482661
L4_D_TOI_INT |  -.0077644   .0192693    -0.40   0.688    -.0458176    .0302888
L5_D_TOI_INT |   .0348973   .0213788     1.63   0.105    -.0073217    .0771163
```

```
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1463503   .2386276    -0.61   0.541    -.6175941    .3248935
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year if hmccode, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -46393.732   Log-Lik Full Model:        -45961.936
D(13146):                    91923.872   LR(131):                      863.591
                                         Prob > LR:                      0.000
R2:                              0.062   Adjusted R2:                    0.035
AIC:                             6.843   AIC*n:                      92733.872
BIC:                        -33150.006   BIC':                         382.771
BIC used by Stata:           93179.749   AIC used by Stata:          92187.872

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 5, COLUMN 1 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

TO RUN THE WESTERLUND ECM COINTEGRATION TEST, WE MUST TRUNCATE THE DATASET TO ESTIMATE CO-INTEGRATION FOR THIS MODEL.

```
xtwest polity_s_interpolate TOIPCINT, constant trend lags(0) leads(1)
lrwindow(12) bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      346 |          3
      860 |          5
----------------------
```

Must delete Bosnia and Herzegovnia (1992 to 1994) and East Timor (1999 to 2006)

```
xtwest polity_s_interpolate TOI_INT, constant trend lags(0) leads(1)
lrwindow(12) bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing
values generated)


Results for H0: no cointegration
With 162 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.258   |    1.691   |   0.955    |      0.000     |
     Ga    |   -9.959   |    3.843   |   1.000    |      0.000     |
     Pt    |  -30.855   |   -4.538   |   0.000    |      0.000     |
     Pa    |  -12.232   |   -6.850   |   0.000    |      0.000     |
-----------------------------------------------------------------+
```

HERE WE RERUN THE WESTERLUND ECM COINTEGRATION TEST BUT NOW INCLUDE 1 lag of Differenced Polity and Differenced Total Oil Income

```
xtwest polity_s_interpolate TOI_INT, constant trend lags(1) leads(1)
lrwindow(12) bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing
values generated)


Results for H0: no cointegration
With 162 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.421  |   -0.850  |   0.198   |      0.080     |
     Ga    |  -11.537  |    0.888  |   0.813   |      0.000     |
     Pt    |  -32.920  |   -6.898  |   0.000   |      0.000     |
     Pa    |  -13.728  |   -9.955  |   0.000   |      0.000     |
-----------------------------------------------------------------+
```

THESE MODELS ARE NOT SHOWN IN REGRESSION TABLE 5. THESE MODELS OMIT THE CONTROL VARIABLES. THEY ARE RUN TO SHOW THAT THE RESULTS ARE NOT SENSITIVE TO INCLUSION OF THE CONTROLS.

NOW WE RUN THE ECM MODEL THAT ACTUALLY ESTIMATES A COEFFICIENT FOR OIL INCOME.

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     14098
Method: Pooled OLS                               Number of groups  =       162
Group variable (i): hmccode                      F(397,   161)     =  5.79e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0608
                                                 Root MSE          =    7.3587

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0651282   .0054042   -12.05   0.000    -.0758005   -.0544558
L_tot_oil_~p |   .0188949   .0115981     1.63   0.105    -.0040091    .0417988
D_tot_oil_~p |   -.029272   .0227442    -1.29   0.200    -.0741874    .0156434


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.290118   .1698579    -1.71   0.090    -.6255548    .0453188
------------------------------------------------------------------------------
```

We had to drop two countries to estimate the Westerlund Tests. What if we rerun the model without dropping these countries?

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     14260
Method: Pooled OLS                               Number of groups  =       164
Group variable (i): hmccode                      F(399,   163)     =  5.50e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0603
                                                 Root MSE          =    7.3183

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0644265    .005355   -12.03   0.000    -.0750007   -.0538523
L_tot_oil_~p |   .0197312   .0114292     1.73   0.086    -.0028371    .0422995
D_tot_oil_~p |   -.028888   .0226237    -1.28   0.203    -.0735613    .0157853


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3062592   .1686604    -1.82   0.071    -.6393001    .0267817
------------------------------------------------------------------------------
```

CONTROL VARIABLES ESTIMATIONS

This is the Westerlund ECM Cointegration test with zero lags and 1 lead

```
Continuous time-series are required

Following series contain holes:


----------------------
  hmccode |      Freq.
----------+-----------
      235 |          3
      255 |          1
      290 |          1
      310 |          1
      315 |          1
      345 |          1
      350 |          1
      355 |          1
      360 |          2
      365 |          1
      710 |          1
----------------------
```

Linear interpolation performed on Log Per Capita Income and Civil War for these countries to fill in missing values.

by hmccode: ipolate log_gdp_per_cap_haber_men_2 year, gen(LogPerCapGDP_interp)

by hmccode: ipolate Civil_War_Gledistsch year, gen(CivilWar_Interp)

Then I create variables with lags and differences, because xtscc command cannot support time-series commands:

```
generate D_polity_s_interp = D.polity_s_interpolate
generate L_polity_s_interp = L.polity_s_interpolate
generate TOI_INC = Total_Oil_Income_PC_interp
generate L_tot_oil_inc_interp = L.TOI_INC
generate D_tot_oil_inc_interp = D.TOI_INC
generate L_LogPerCapGDP_interp = L.LogPerCapGDP_interp
generate L_CivilWar_interp = L.CivilWar_Interp
generate D_LogperCapGDP_int = D.LogPerCapGDP_interp
generate D_Region_Dem_Diffuse = D.REGION_DEM_DIFFUSE
generate D_World_Dem_Diffuse = D.WORLD_DEM_DIFFUSE
```

Next I run the Error Correction Model, which is Table 5 Column 1 of the paper.

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode, lag(1)
i.year           _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     10195
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(406,   162)     =  3.89e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0976
                                                 Root MSE          =    8.0174

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0866505   .0075012   -11.55   0.000    -.1014632   -.0718378
L_tot_oil_~p |   .0549448   .0189722     2.90   0.004     .0174801    .0924095
D_tot_oil_~p |   -.020123    .020695    -0.97   0.332    -.0609899    .0207438
L_LogPerCa~p |  -.2792974   .3190151    -0.88   0.383    -.9092616    .3506668
L_CivilWar~p |   .0653507   .4478818     0.15   0.884    -.8190885      .94979
L_REGION_D~E |   .0253094   .0072466     3.49   0.001     .0109994    .0396194
L_WORLD_DE~E |   .0381942   .0248167     1.54   0.126    -.0108117    .0872001
D_LogperCa~t |   1.289146   1.733698     0.74   0.458    -2.134414    4.712706
D_Region_D~e |    .375257   .0699338     5.37   0.000     .2371576    .5133564
D_World_De~e |  -.2443375    .104442    -2.34   0.021    -.4505808   -.0380943
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6340973   .2069834    -3.06   0.003    -1.042831   -.2253639
------------------------------------------------------------------------------
```

Lagging the D.V. instead of using the Newey West Technique

```
xi: xtscc D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_Civil War_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, lag(0)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =     10104
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(407,   162)     =  4.42e+08
maximum lag: 0                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1029
                                                 Root MSE          =    7.9921

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0724939   .0188138     3.85   0.000     .0353419    .1096459
L_polity_s~p |  -.0935088   .0065787   -14.21   0.000    -.1064999   -.0805177
L_tot_oil_~p |   .0533883    .017972     2.97   0.003     .0178988    .0888779
D_tot_oil_~p |  -.0209289   .0215159    -0.97   0.332    -.0634166    .0215588
L_LogPerCa~p |  -.2277742   .3129183    -0.73   0.468     -.845699    .3901505
L_CivilWar~p |   .2106091   .4850723     0.43   0.665    -.7472708    1.168489
L_REGION_D~E |   .0278066   .0072216     3.85   0.000     .0135459    .0420673
L_WORLD_DE~E |   .0420258   .0252494     1.66   0.098    -.0078346    .0918862
D_LogperCa~t |   1.083303   1.721932     0.63   0.530    -2.317022    4.483629
D_Region_D~e |    .371734   .0632179     5.88   0.000     .2468965    .4965714
D_World_De~e |  -.2557369   .0970711    -2.63   0.009    -.4474249    -.064049
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5709443   .1844726    -3.10   0.002    -.9352253   -.2066633
------------------------------------------------------------------------------
```

Lagging the D.V. and estimating with robust standard errors clustered by year to address contemporaneous correlation:

```
xi: regress D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, r cluster(year)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Linear regression                                      Number of obs =   10104
                                                       F(114,   189) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.1029
                                                       Root MSE      =  7.9921

                                (Std. Err. adjusted for 190 clusters in year)
------------------------------------------------------------------------------
             |               Robust
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0724939   .0192089     3.77   0.000     .0346025    .1103852
L_polity_s~p |  -.0935088   .0067168   -13.92   0.000    -.1067584   -.0802592
L_tot_oil_~p |   .0533883   .0183493     2.91   0.004     .0171925    .0895841
D_tot_oil_~p |  -.0209289   .0219676    -0.95   0.342    -.0642622    .0224043
L_LogPerCa~p |  -.2277742   .3194889    -0.71   0.477    -.8579964    .4024479
L_CivilWar~p |   .2106091   .4952576     0.43   0.671    -.7663337    1.187552
L_REGION_D~E |   .0278066   .0073733     3.77   0.000     .0132621    .0423511
L_WORLD_DE~E |   .0197922   .0122004     1.62   0.106    -.0042742    .0438586
D_LogperCa~t |   1.083303   1.758088     0.62   0.539    -2.384693    4.551299
D_Region_D~e |    .371734   .0645454     5.76   0.000     .2444121    .4990558
D_World_De~e |   .0738119   .0982587     0.75   0.453    -.1200126    .2676365


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5709443   .1883461    -3.03   0.003    -.9424749   -.1994137
------------------------------------------------------------------------------
```

Running this model on all of the countries, including those excluded because of the Westerlund ECM Cointegration test restrictions, shows that there is no material difference regarding the estimated parameters whether it is the full sample or the restricted sample. Next I run the Westerlund ECM Cointegration Test

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(11)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      316 |         14
      317 |         14
      343 |         16
      344 |         15
      346 |          3
      347 |         15
      349 |         15
      359 |         16
      366 |         16
      367 |         16
      368 |         16
      369 |         15
      370 |         15
      371 |         16
      372 |         15
      373 |         15
      531 |         14
      565 |         17
      701 |         15
      702 |         15
      703 |         15
      704 |         15
      705 |         15
      860 |          5
----------------------

.
Czech Republic, Slovakia, Macedonia, Croatia, Serbia RB, Slovenia, Moldova, Estonia,
Latvia, Lithuania, Ukraine, Belarus, Armenia, Azerbajain, Eritrea, Namibia, Turkmenistan,
Tajikistan, Uzbekistan, Kazakhastan, East Timor and Bosnia & Herzegovenia are excluded
because their panels do not have sufficient observations.
```

```
Then I drop the countries that do not conform to the requirements.
```

drop if **hmccode == 316 | hmccode == 317 | hmccode == 343 | hmccode == 344 | hmccode == 346** | hmccode == 347 | hmccode == 349 | hmccode == 359 | hmccode == 366 | hmccode == 367 | hmccode == 368 | hmccode == 369 | hmccode == 370 | hmccode == 371 | hmccode == 372 | hmccode == 373 | hmccode == 531 | hmccode == 565 | hmccode == 701 | hmccode == 702 | hmccode == 703 | hmccode == 704 | hmccode == 705 | hmccode == 860

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(11)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 139 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.075  |   -0.767  |   0.221   |      0.000     |
     Ga    |  -12.173  |    9.065  |   1.000   |      0.200     |
     Pt    |  -32.009  |    0.838  |   0.799   |      0.040     |
     Pa    |  -12.421  |    4.261  |   1.000   |      0.160     |
-----------------------------------------------------------------+
```

WHAT ABOUT RERUNNING THE WESTERLUND ECM TEST WITH A LAG OF THE DEPENDENT VARIABLE AND OF TOTAL OIL INCOME?

```
xtwest polity_s_interpolate TOI_INT LogPerCapGDP_interpolate CivilWar_interpolate
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(11)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 138 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.904  |    1.408  |   0.920   |      0.000     |
     Ga    |  -11.829  |    9.471  |   1.000   |      0.640     |
     Pt    |  -28.576  |    4.167  |   1.000   |      0.000     |
     Pa    |  -10.671  |    6.524  |   1.000   |      0.400     |
-----------------------------------------------------------------+
```

TO RUN THE WESTERLUND ECM COINTEGRATION TEST WITH 1 lag and 1 lead, we need 28 observations. We must drop Guyana because it only has 27 observations.

Therefore, we rerun the model excluding Guyana. It makes no difference to the results:

Estimating the model again without Guyana, which is the dataset that the Westerlund ECM test depicted above was run on, is:

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode if hmccode
!=110, lag(1)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9850
Method: Pooled OLS                               Number of groups  =       138
Group variable (i): hmccode                      F(382,   137)     =  3.52e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0962
                                                 Root MSE          =    8.0293

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0849284   .0076934   -11.04   0.000    -.1001416   -.0697152
L_tot_oil_~p |   .0535293   .0190273     2.81   0.006     .0159042    .0911545
D_tot_oil_~p |  -.0175177   .0197183    -0.89   0.376    -.0565092    .0214738
L_LogPerCa~p |  -.2858011   .3184908    -0.90   0.371    -.9155948    .3439926
L_CivilWar~p |    .075063   .4358316     0.17   0.864    -.7867641      .93689
L_REGION_D~E |   .0241469   .0074872     3.23   0.002     .0093414    .0389523
L_WORLD_DE~E |   .0398295   .0248195     1.60   0.111    -.0092493    .0889084
D_LogperCa~t |   .6728189   1.760521     0.38   0.703     -2.80849    4.154127
D_Region_D~e |   .3846962   .0738194     5.21   0.000     .2387234    .5306691
D_World_De~e |   -.255143    .109619    -2.33   0.021    -.4719069    -.038379

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6302875   .2125063    -2.97   0.004    -1.050504   -.2100709
------------------------------------------------------------------------------
```

THIS RUNS THE MODEL ON THE TRUNCATED DATASET, WITH COUNTRIES EXCLUDED FROM THE SAMPLE DUE TO THE WESTERLUND COINTEGRATION REQUIREMENTS.

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode, lag(1)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9876
Method: Pooled OLS                               Number of groups  =       139
Group variable (i): hmccode                      F(382,   138)     =  4.08e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0960
                                                 Root MSE          =    8.0442

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0850779   .0076515   -11.12   0.000    -.1002072   -.0699486
L_tot_oil_~p |   .0541576   .0188095     2.88   0.005     .0169655    .0913498
D_tot_oil_~p |  -.0181906   .0199673    -0.91   0.364    -.0576719    .0212907
L_LogPerCa~p |  -.2863056   .3185608    -0.90   0.370     -.916197    .3435859
L_CivilWar~p |   .0766794   .4360949     0.18   0.861    -.7856126    .9389714
L_REGION_D~E |   .0238398   .0074266     3.21   0.002     .0091552    .0385244
L_WORLD_DE~E |   .0404861   .0248923     1.63   0.106    -.0087335    .0897057
D_LogperCa~t |   .8092135   1.753912     0.46   0.645    -2.658802    4.277229
D_Region_D~e |   .3781975   .0713362     5.30   0.000     .2371441    .5192509
D_World_De~e |  -.2475587   .1059571    -2.34   0.021    -.4570681   -.0380494

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.636565   .2098694    -3.03   0.003    -1.051541   -.2215895
------------------------------------------------------------------------------
```

RUNNING THE MODEL AGAIN WITH A LAG OF THE DEPENDENT VARIABLE

```
xi: xtscc D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, lag(0)
i.year            _Iyeara1777-2006    (naturally coded; _Iyeara1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9809
Method: Pooled OLS                               Number of groups  =       139
Group variable (i): hmccode                      F(383,   138)     =  3.03e+08
maximum lag: 0                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1004
                                                 Root MSE          =    8.0163

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0688691   .0190491     3.62   0.000     .0312032    .1065349
L_polity_s~p |  -.0914584   .0066989   -13.65   0.000    -.1047041   -.0782126
L_tot_oil_~p |   .0538809   .0178393     3.02   0.003     .0186072    .0891546
D_tot_oil_~p |  -.0198491    .021193    -0.94   0.351    -.0617541     .022056
L_LogPerCa~p |  -.2594646   .3100855    -0.84   0.404    -.8725978    .3536687
L_CivilWar~p |   .1512873   .4859789     0.31   0.756    -.8096405    1.112215
L_REGION_D~E |   .0263966   .0073257     3.60   0.000     .0119115    .0408817
L_WORLD_DE~E |   .0435114   .0254547     1.71   0.090    -.0068203    .0938431
D_LogperCa~t |   .9534196   1.782847     0.53   0.594    -2.571811     4.47865
D_Region_D~e |   .3734076   .0648073     5.76   0.000     .2452638    .5015514
D_World_De~e |  -.2597787   .0990518    -2.62   0.010    -.4556342   -.0639233

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -.58913   .1864902    -3.16   0.002    -.9578778   -.2203822
------------------------------------------------------------------------------
```

RUNNING THE MODEL AGAIN WITH A LAG OF THE DEPENDENT VARIABLE AND ERRORS CLUSTERED BY YEAR

```
xi: regress D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, r cluster(year)
i.year           _Iyeara1777-2006    (naturally coded; _Iyeara1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Linear regression                                      Number of obs =    9809
                                                       F(114,   189) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.1004
                                                       Root MSE      =  8.0163

                                 (Std. Err. adjusted for 190 clusters in year)
------------------------------------------------------------------------------
             |               Robust
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0688691   .0194352     3.54   0.000     .0305312    .1072069
L_polity_s~p |  -.0914584   .0068347   -13.38   0.000    -.1049404   -.0779763
L_tot_oil_~p |   .0538809   .0182009     2.96   0.003     .0179778    .0897839
D_tot_oil_~p |  -.0198491   .0216226    -0.92   0.360    -.0625018    .0228036
L_LogPerCa~p |  -.2594646   .3163711    -0.82   0.413    -.8835367    .3646075
L_CivilWar~p |   .1512873   .4958299     0.31   0.761    -.8267843    1.129359
L_REGION_D~E |   .0263966   .0074742     3.53   0.001     .0116531    .0411402
L_WORLD_DE~E |   .0203245   .0125874     1.61   0.108    -.0045053    .0451544
D_LogperCa~t |   .9534196   1.818986     0.52   0.601    -2.634704    4.541543
D_Region_D~e |   .3734076    .066121     5.65   0.000     .2429776    .5038376
D_World_De~e |   .0712186   .1006847     0.71   0.480    -.1273916    .2698289


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -.58913   .1902705    -3.10   0.002    -.9644566   -.2138034
------------------------------------------------------------------------------
```

GENERATING A COMPARATIVE BASELINE: THE BIVARIATE MODEL

RERUNNING WITHOUT THE CONTROL VARIABLES INCLUDED ON THE CONTROL VARIABLES OBSERVATIONS DATASET (COLUMN 6)

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(11)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(26 missing values
generated)


Results for H0: no cointegration
With 139 series and 1 covariate

------------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.268  |    1.423  |   0.923   |      0.400     |
     Ga    |   -8.916  |    5.367  |   1.000   |      0.320     |
     Pt    |  -27.293  |   -2.731  |   0.003   |      0.120     |
     Pa    |  -10.580  |   -3.167  |   0.001   |      0.040     |
------------------------------------------------------------------+

xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(11)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(26 missing values
generated)


Results for H0: no cointegration
With 139 series and 1 covariate

------------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.417  |   -0.730  |   0.233   |      0.040     |
     Ga    |  -10.506  |    2.609  |   0.996   |      0.080     |
     Pt    |  -28.770  |   -4.420  |   0.000   |      0.040     |
     Pa    |  -11.866  |   -5.640  |   0.000   |      0.040     |
------------------------------------------------------------------+
```

These commands were used to generate the special dataset:

keep if LogPerCapGDP_interp != . & CivilWar_Interp != . & REGION_DEM_DIFFUSE != . & WORLD_DEM_DIFFUSE != .

This ECM Co-integration test is run on a special dataset that has the following characteristics:

- It is truncated to observations on those for which there is data for all covariates, including control variables, measured contemporaneously.
- It is truncated to the countries that have more than 21 observations, so that this test is comparable to the one run with all of the control variables included as conditioning variables in the ECM test.

ESTIMATING THE BIVARIATE MODEL ON THE CONTROL VARIABLE DATASET, TRUNCATED TO THE COVERAGE ON THE CONTROL VARIABLES.

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.year i.hmccode if D_polity_s_interp != . & L_polity_s_interp !=. & L_tot_oil_inc_interp
!= . & D_tot_oil_inc_interp  != . & L_LogPerCapGDP_interp != . & L_CivilWar_interp != . &
L_REGION_DEM_DIFFUSE != . & L_WORLD_DEM_DIFFUSE != . & D_LogperCapGDP_int != . &
D_Region_Dem_Diffuse != . & D_World_Dem_Diffuse != ., lag(1)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9876
Method: Pooled OLS                               Number of groups  =       139
Group variable (i): hmccode                      F(375,   138)     =  1.01e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0714
                                                 Root MSE          =    8.1508

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0808247   .0072957   -11.08   0.000    -.0952505    -.066399
L_tot_oil_~p |   .0363543   .0115261     3.15   0.002     .0135637    .0591449
D_tot_oil_~p |  -.0198396    .024032    -0.83   0.410    -.0673582    .0276789


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.449792   .1249855    -3.60   0.000    -.6969262   -.2026578

.
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4979
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(202,   162)     =    287.89
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1007
                                                 Root MSE          =    8.4478

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1266905   .0168362    -7.52   0.000    -.1599372   -.0934438
L_tot_oil_~p |   .0824551   .0160331     5.14   0.000     .0507942    .1141159
D_tot_oil_~p |   .0010149   .0292733     0.03   0.972    -.0567917    .0588214


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6508385   .0712044    -9.14   0.000     -.791447     -.51023
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp year i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17852.180   Log-Lik Full Model:        -17588.066
D(4776):                     35176.133   LR(35):                       528.227
                                         Prob > LR:                      0.000
R2:                              0.101   Adjusted R2:                    0.063
AIC:                             7.146   AIC*n:                      35582.133
BIC:                         -5481.881   BIC':                        -230.273
BIC used by Stata:           35482.600   AIC used by Stata:          35248.133

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4948
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(203,   162)     =  1.43e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1006
                                                 Root MSE          =    8.4461

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1263648   .0171215    -7.38   0.000     -.160175   -.0925547
L_tot_oil_~p |   .0894008   .0186113     4.80   0.000     .0526489    .1261527
D_tot_oil_~p |   .0005941   .0303186     0.02   0.984    -.0592765    .0604647
 L_D_TOI_INT |  -.0414697   .0245945    -1.69   0.094    -.0900369    .0070974


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7074817   .0879574    -8.04   0.000    -.8811725   -.5337908
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17738.744   Log-Lik Full Model:        -17476.421
D(4744):                     34952.841   LR(36):                       524.646
                                         Prob > LR:                      0.000
R2:                              0.101   Adjusted R2:                    0.063
AIC:                             7.146   AIC*n:                      35360.841
BIC:                         -5403.127   BIC':                        -218.404
BIC used by Stata:           35267.591   AIC used by Stata:          35026.841

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

The regressions that follow below exclude Bosnia and Herzegovina, which is observed between 1992 and 1994, because these three observations are not sufficient when estimating 2 lags.

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4917
Method: Pooled OLS                               Number of groups  =       162
Group variable (i): hmccode                      F(204,   161)     =  8.58e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1006
                                                 Root MSE          =    8.4427

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1258041   .0173142    -7.27   0.000    -.1599963   -.0916118
L_tot_oil_~p |   .0917219   .0195348     4.70   0.000     .0531444    .1302994
D_tot_oil_~p |  -.0046628   .0282619    -0.16   0.869    -.0604747    .0511491
 L_D_TOI_INT |  -.0447506   .0237985    -1.88   0.062    -.0917481    .0022469
L2_D_TOI_INT |  -.0167362   .0261736    -0.64   0.523     -.068424    .0349516
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.729085   .0879463    -8.29   0.000    -.9027622   -.5554079
------------------------------------------------------------------------------
```

xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, r cluster(ccode)

```
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17624.870   Log-Lik Full Model:        -17364.297
D(4712):                     34728.594   LR(43):                       521.146
                                         Prob > LR:                      0.000
R2:                              0.101   Adjusted R2:                    0.063
AIC:                             7.146   AIC*n:                      35138.594
BIC:                         -5325.545   BIC':                        -155.626
BIC used by Stata:           35094.113   AIC used by Stata:          34814.594

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4885
Method: Pooled OLS                               Number of groups  =       162
Group variable (i): hmccode                      F(205,   161)     =     86.28
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0999
                                                 Root MSE          =    8.4479

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1256446   .0173883    -7.23   0.000    -.1599831   -.0913061
L_tot_oil_~p |   .0937272   .0226162     4.14   0.000     .0490645    .1383899
D_tot_oil_~p |  -.0035552   .0288906    -0.12   0.902    -.0606085    .0534982
 L_D_TOI_INT |  -.0495485   .0268976    -1.84   0.067    -.1026661    .0035692
L2_D_TOI_INT |  -.0191329   .0261765    -0.73   0.466    -.0708265    .0325607
L3_D_TOI_INT |  -.0134604   .0262328    -0.51   0.609    -.0652652    .0383443


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7459712   .1124844    -6.63   0.000    -.9681063   -.5238361
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17510.148   Log-Lik Full Model:        -17253.096
D(4679):                     34506.192   LR(38):                       514.103
                                         Prob > LR:                      0.000
R2:                              0.100   Adjusted R2:                    0.061
AIC:                             7.148   AIC*n:                      34918.192
BIC:                         -5236.881   BIC':                        -191.334
BIC used by Stata:           34837.455   AIC used by Stata:          34584.192

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4853
Method: Pooled OLS                               Number of groups  =       161
Group variable (i): hmccode                      F(206,   160)     =     93.21
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0997
                                                 Root MSE          =    8.4579

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1258397   .0173748    -7.24   0.000    -.1601533   -.0915262
L_tot_oil_~p |   .0993786   .0221673     4.48   0.000     .0556003    .1431568
D_tot_oil_~p |  -.0078337   .0349304    -0.22   0.823    -.0768177    .0611503
 L_D_TOI_INT |  -.0544617   .0266337    -2.04   0.043    -.1070605   -.0018628
L2_D_TOI_INT |  -.0264263   .0258657    -1.02   0.308    -.0775084    .0246559
L3_D_TOI_INT |  -.0192203   .0227579    -0.84   0.400    -.0641649    .0257244
L4_D_TOI_INT |  -.0337972   .0146026    -2.31   0.022    -.0626359   -.0049585


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7897234   .1054999    -7.49   0.000    -.9980754   -.5813713
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17399.815   Log-Lik Full Model:        -17145.089
D(4646):                     34290.179   LR(39):                       509.452
                                         Prob > LR:                      0.000
R2:                              0.100   Adjusted R2:                    0.061
AIC:                             7.151   AIC*n:                      34704.179
BIC:                         -5142.060   BIC':                        -178.445
BIC used by Stata:           34629.673   AIC used by Stata:          34370.179

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year if
hmccode, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4819
Method: Pooled OLS                               Number of groups  =       161
Group variable (i): hmccode                      F(207,   160)     = 878609.25
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0997
                                                 Root MSE          =    8.4339

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1250646   .0174368    -7.17   0.000    -.1595006   -.0906287
L_tot_oil_~p |   .1009174   .0224302     4.50   0.000       .05662    .1452148
D_tot_oil_~p |  -.0062024   .0388325    -0.16   0.873    -.0828927    .0704879
 L_D_TOI_INT |  -.0550999   .0268558    -2.05   0.042    -.1081374   -.0020625
L2_D_TOI_INT |  -.0270229   .0258539    -1.05   0.298    -.0780819    .0240361
L3_D_TOI_INT |  -.0207486   .0220855    -0.94   0.349    -.0643653    .0228681
L4_D_TOI_INT |  -.0343589   .0145987    -2.35   0.020    -.0631899    -.005528
L5_D_TOI_INT |     -.0063   .0256367    -0.25   0.806    -.0569299    .0443299
```

```
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8069221   .1025643    -7.87   0.000    -1.009476   -.6043677
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year if hmccode, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -17263.067   Log-Lik Full Model:         -17010.019
D(4611):                     34020.037   LR(40):                        506.097
                                         Prob > LR:                       0.000
R2:                              0.100   Adjusted R2:                     0.060
AIC:                             7.146   AIC*n:                       34436.037
BIC:                         -5082.726   BIC':                         -166.884
BIC used by Stata:           34367.730   AIC used by Stata:           34102.037

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 5, COLUMN 2 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED. WE ALSO RERUN THE MODEL EXCLUDING CONTROLS TO SHOW THAT THE RESULTS ARE NOT SENSITIVE TO THEIR OMISSION.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]`

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.
THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME.

HERE IS THE ESTIMATION OF THAT MODEL:

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4979
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(202,   162)     =    287.89
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1007
                                                 Root MSE          =    8.4478

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1266905   .0168362    -7.52   0.000    -.1599372   -.0934438
L_tot_oil_~p |   .0824551   .0160331     5.14   0.000     .0507942    .1141159
D_tot_oil_~p |   .0010149   .0292733     0.03   0.972    -.0567917    .0588214
```

```
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6508385   .0712044    -9.14   0.000     -.791447     -.51023
------------------------------------------------------------------------------
```

TO RUN THE WESTERLUND ECM COINTEGRATION TEST, WE MUST TRUNCATE THE DATASET TO ESTIMATE CO-INTEGRATION FOR THIS MODEL, HOWEVER.

```
xtwest polity_s_interpolate TOI_INT, constant trend lags(0) leads(1)
lrwindow(12) bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      346 |          3
      860 |          5
----------------------
```

Must delete Bosnia and Herzegovnia (1992 to 1994) and East Timor (1999 to 2006)

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1)
lrwindow(9) bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(102 missing
values generated)


Results for H0: no cointegration
With 161 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.474  |   -1.678  |   0.047   |     0.200      |
     Ga    | -7.1e+10  | -1.3e+11  |   0.000   |     0.000      |
     Pt    | -7.6e+09  | -8.7e+09  |   0.000   |     0.000      |
     Pa    | -2.5e+09  | -5.1e+09  |   0.000   |     0.000      |
-----------------------------------------------------------------+
```

HERE WE RERUN THE WESTERLUND ECM COINTEGRATION TEST BUT NOW INCLUDE 1 lag of Differenced Polity and Differenced Total Oil Income

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1)
lrwindow(9) bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(102 missing
values generated)


Results for H0: no cointegration
With 161 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.844  |   -7.465  |   0.000   |      0.080     |
     Ga    | -8.4e+11  | -1.6e+12  |   0.000   |      0.000     |
     Pt    | -1.7e+10  | -1.9e+10  |   0.000   |      0.000     |
     Pa    | -5.8e+09  | -1.2e+10  |   0.000   |      0.000     |
-----------------------------------------------------------------+
```

NOW WE RUN THE ECM MODEL ON THE TRUNCATED SAMPLE

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4973
Method: Pooled OLS                               Number of groups  =       161
Group variable (i): hmccode                      F(200,   160)     =    287.86
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1007
                                                 Root MSE          =    8.4511

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1266866   .0168371    -7.52   0.000    -.1599382   -.0934351
L_tot_oil_~p |   .0823091    .016052     5.13   0.000     .0506079    .1140103
D_tot_oil_~p |   .0010956   .0292478     0.04   0.970     -.056666    .0588572


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6497061    .071348    -9.11   0.000    -.7906114   -.5088007
------------------------------------------------------------------------------
```

CONTROL VARIABLES REGRESSIONS

This is the Westerlund ECM Cointegration test with zero lags and 1 lead

```
Continuous time-series are required

Following series contain holes:


----------------------
  hmccode |      Freq.
----------+-----------
      235 |          3
      255 |          1
      290 |          1
      310 |          1
      315 |          1
      345 |          1
      350 |          1
      355 |          1
      360 |          2
      365 |          1
      710 |          1
----------------------
```

Linear interpolation performed on Log Per Capita Income and Civil War for these countries to fill in missing values.

by hmccode: ipolate log_gdp_per_cap_haber_men_2 year, gen(LogPerCapGDP_interp)

by hmccode: ipolate Civil_War_Gledistsch year, gen(CivilWar_Interp)

Then I create variables with lags and differences, because xtscc command cannot support time-series commands:

generate D_polity_s_interp = D.polity_s_interpolate
generate L_polity_s_interp = L.polity_s_interpolate
generate TOI_INC = Total_Oil_Income_PC_interp
generate L_tot_oil_inc_interp = L.TOI_INC
generate D_tot_oil_inc_interp = D.TOI_INC
generate L_LogPerCapGDP_interp = L.LogPerCapGDP_interp
generate L_CivilWar_interp = L.CivilWar_Interp
generate D_LogperCapGDP_int = D.LogPerCapGDP_interp
generate D_Region_Dem_Diffuse = D.REGION_DEM_DIFFUSE
generate D_World_Dem_Diffuse = D.WORLD_DEM_DIFFUSE

Next I run the Error Correction Model shown in Table 5, Column 2 of the table.

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse year i.year i.hmccode, lag(1)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4970
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(209,   162)     =     74.70
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1472
                                                 Root MSE          =    8.2240

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.141252   .0166848    -8.47   0.000    -.1741997   -.1083044
L_tot_oil_~p |   .1441083   .0210993     6.83   0.000     .1024432    .1857733
D_tot_oil_~p |   .0340113   .0295595     1.15   0.252    -.0243602    .0923829
L_LogPerCa~p |    -1.9789   .3329297    -5.94   0.000    -2.636342   -1.321459
L_CivilWar~p |  -.2959232   .6191404    -0.48   0.633     -1.51855    .9267032
L_REGION_D~E |   .0532444   .0123636     4.31   0.000     .0288298     .077659
L_WORLD_DE~E |   .2641058   .0207474    12.73   0.000     .2231356     .305076
D_LogperCa~t |  -.5952838    2.70925    -0.22   0.826    -5.945283    4.754715
D_Region_D~e |   .4793313   .0910466     5.26   0.000     .2995401    .6591225
D_World_De~e |   .7099696   .0924503     7.68   0.000     .5274066    .8925327
        year |   .0095121    .001682     5.66   0.000     .0061906    .0128337


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.020221   .1344155    -7.59   0.000    -1.285653   -.7547884
------------------------------------------------------------------------------
```

Lagging the D.V. instead of using the Newey West Technique.

```
xi: xtscc D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, lag(0)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4937
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(210,   162)     =     27.38
maximum lag: 0                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1547
                                                 Root MSE          =    8.1835

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0910363    .020164     4.51   0.000     .0512182    .1308544
L_polity_s~p |  -.1532302   .0145864   -10.50   0.000    -.1820343   -.1244262
L_tot_oil_~p |   .1427274   .0206964     6.90   0.000     .1018578     .183597
D_tot_oil_~p |    .035168   .0288907     1.22   0.225    -.0218828    .0922189
L_LogPerCa~p |  -1.883431   .3926223    -4.80   0.000    -2.658749   -1.108114
L_CivilWar~p |  -.0416852   .6481025    -0.06   0.949    -1.321503    1.238133
L_REGION_D~E |   .0586967   .0116823     5.02   0.000     .0356274    .0817659
L_WORLD_DE~E |   .2583795   .0210183    12.29   0.000     .2168744    .2998847
D_LogperCa~t |  -.8597004   2.688326    -0.32   0.750    -6.168381     4.44898
D_Region_D~e |   .4740597   .0800361     5.92   0.000     .3160112    .6321083
D_World_De~e |   .6395102   .0891661     7.17   0.000     .4634324    .8155879

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9314573   .1301775    -7.16   0.000    -1.188521   -.6743938
------------------------------------------------------------------------------
```

Lagging the D.V. and estimating with robust standard errors clustered by year

```
xi: regress D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, r cluster(year)
i.year           _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Linear regression                                      Number of obs =    4937
                                                       F( 32,    33) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.1547
                                                       Root MSE      =  8.1835

                                  (Std. Err. adjusted for 34 clusters in year)
------------------------------------------------------------------------------
             |               Robust
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0910363   .0209037     4.36   0.000     .0485074    .1335653
L_polity_s~p |  -.1532302   .0151216   -10.13   0.000    -.1839953   -.1224652
L_tot_oil_~p |   .1427274   .0214557     6.65   0.000     .0990754    .1863794
D_tot_oil_~p |    .035168   .0299506     1.17   0.249    -.0257669     .096103
L_LogPerCa~p |  -1.883431   .4070265    -4.63   0.000    -2.711533    -1.05533
L_CivilWar~p |  -.0416852   .6718795    -0.06   0.951    -1.408634    1.325264
L_REGION_D~E |   .0586967   .0121109     4.85   0.000     .0340568    .0833365
L_WORLD_DE~E |  -.0570568   .0404084    -1.41   0.167    -.1392684    .0251548
D_LogperCa~t |  -.8597004   2.786953    -0.31   0.760      -6.5298    4.810399
D_Region_D~e |   .4740597   .0829724     5.71   0.000     .3052511    .6428684
D_World_De~e |  -.3645279   .0808407    -4.51   0.000    -.5289995   -.2000564
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9314573   .1349533    -6.90   0.000    -1.206022   -.6568927
------------------------------------------------------------------------------
```

Running this model on all of the countries, including those excluded because of the Westerlund ECM Cointegration test restrictions, shows that there is no material difference regarding the estimated parameters whether it is the full sample or the restricted sample. Next I run the Westerlund ECM Cointegration Test

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      315 |         20
      316 |         14
      317 |         14
      343 |         16
      344 |         15
      345 |         18
      346 |          3
      347 |         15
      349 |         15
      359 |         16
      366 |         16
      367 |         16
      368 |         16
      369 |         15
      370 |         15
      371 |         16
      372 |         15
      373 |         15
      531 |         14
      565 |         17
      701 |         15
      702 |         15
      703 |         15
      704 |         15
      705 |         15
      860 |          5
----------------------

.
Czechoslovakia, Czech Republic, Slovakia, Macedonia, Croatia, Serbia RB, Slovenia,
Moldova, Estonia, Latvia, Lithuania, Ukraine, Belarus, Armenia, Azerbajain, Eritrea,
Namibia, Turkmenistan, Tajikistan, Uzbekistan, Kazakhastan, East Timor and Bosnia &
Herzegovenia are excluded because their panels do not have sufficient observations.
```

```
Then I drop the countries that do not conform to the requirements.
```

drop if **hmccode == 316 | hmccode == 317 | hmccode == 343 | hmccode == 344 | hmccode == 345 | hmccode == 346 |** hmccode == 347 | hmccode == 349 | hmccode == 359 | hmccode == 366 | hmccode == 367 | hmccode == 368 | hmccode == 369 | hmccode == 370 | hmccode == 371 | hmccode == 372 | hmccode == 373 | hmccode == 531 | hmccode == 565 | hmccode == 701 | hmccode == 702 | hmccode == 703 | hmccode == 704 | hmccode == 705 | hmccode == 860

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(102 missing values
generated)


Results for H0: no cointegration
With 137 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.896   |    1.505   |   0.934    |      0.080     |
     Ga    | -2.7e+09   | -3.4e+09   |   0.000    |      0.000     |
     Pt    | -9.0e+07   | -9.0e+07   |   0.000    |      0.000     |
     Pa    | -1.9e+07   | -2.5e+07   |   0.000    |      0.000     |
-----------------------------------------------------------------+
```

WHAT ABOUT RERUNNING THE WESTERLUND ECM TEST WITH A LAG OF THE DEPENDENT VARIABLE AND OF TOTAL OIL INCOME?

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(102 missing values
generated)


Results for H0: no cointegration
With 136 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.737   |    3.518   |   1.000    |      0.000     |
     Ga    |   -2.867   |   20.752   |   1.000    |      0.840     |
     Pt    |  -12.984   |   19.584   |   1.000    |      0.040     |
     Pa    |   -2.114   |   17.538   |   1.000    |      0.160     |
-----------------------------------------------------------------+
```

TO RUN THE WESTERLUND ECM COINTEGRATION TEST WITH 1 lag and 1 lead, we need 28 observations. We must drop Guyana because it only has 27 observations.

Therefore, we rerun the model excluding Guyana. It makes no difference to the results:

Estimating the model again without Guyana, which is the dataset that the Westerlund ECM test depicted above was run on, is:

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode if hmccode
!=110, lag(1)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4587
Method: Pooled OLS                               Number of groups  =       136
Group variable (i): hmccode                      F(182,   135)     =    110.40
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1427
                                                 Root MSE          =    8.2624

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1389868   .0174621    -7.96   0.000    -.1735215   -.1044521
L_tot_oil_~p |   .1432667   .0210513     6.81   0.000     .1016338    .1848996
D_tot_oil_~p |   .0393907   .0273929     1.44   0.153     -.014784    .0935653
L_LogPerCa~p |  -2.027256   .3270049    -6.20   0.000    -2.673971   -1.380541
L_CivilWar~p |  -.2885526   .5909339    -0.49   0.626    -1.457238    .8801329
L_REGION_D~E |   .0504562   .0132476     3.81   0.000     .0242566    .0766558
L_WORLD_DE~E |   .2403688   .0197394    12.18   0.000     .2013304    .2794072
D_LogperCa~t |  -1.911057   2.894175    -0.66   0.510    -7.634844    3.812731
D_Region_D~e |   .4905463   .0950375     5.16   0.000     .3025913    .6785013
D_World_De~e |   .6224617   .0827503     7.52   0.000     .4588071    .7861163
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.030794   .1384049    -7.45   0.000    -1.304516   -.7570713
------------------------------------------------------------------------------
```

THIS RUNS THE MODEL ON THE TRUNCATED DATASET, WITH COUNTRIES EXCLUDED FROM THE SAMPLE.

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode, lag(1)
i.year           _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4631
Method: Pooled OLS                               Number of groups  =       138
Group variable (i): hmccode                      F(184,   137)     =    111.09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1396
                                                 Root MSE          =    8.2878

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |    -.13832   .0173093    -7.99   0.000     -.172548    -.104092
L_tot_oil_~p |   .1424297   .0204634     6.96   0.000     .1019647    .1828947
D_tot_oil_~p |   .0375953   .0281931     1.33   0.185    -.0181547    .0933453
L_LogPerCa~p |  -1.998362   .3216886    -6.21   0.000    -2.634479   -1.362245
L_CivilWar~p |   -.271011   .5903936    -0.46   0.647    -1.438474    .8964517
L_REGION_D~E |   .0481414   .0128352     3.75   0.000     .0227607     .073522
L_WORLD_DE~E |   .2565404   .0199284    12.87   0.000     .2171334    .2959474
D_LogperCa~t |  -1.446858   2.890023    -0.50   0.617    -7.161681    4.267964
D_Region_D~e |   .4623846   .0784828     5.89   0.000     .3071902     .617579
D_World_De~e |   .7694589   .0689911    11.15   0.000     .6330338     .905884

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.029712   .1387591    -7.42   0.000    -1.304098   -.7553252
------------------------------------------------------------------------------
```

RUNNING THE MODEL AGAIN WITH A LAG OF THE DEPENDENT VARIABLE

```
xi: xtscc D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, lag(0)
i.year           _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4622
Method: Pooled OLS                               Number of groups  =       138
Group variable (i): hmccode                      F(185,   137)     =     22.75
maximum lag: 0                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1449
                                                 Root MSE          =    8.2424

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0834275   .0207659     4.02   0.000     .0423643    .1244906
L_polity_s~p |  -.1486734   .0151069    -9.84   0.000    -.1785463   -.1188005
L_tot_oil_~p |   .1422037   .0207062     6.87   0.000     .1012586    .1831487
D_tot_oil_~p |   .0367712   .0289032     1.27   0.205    -.0203828    .0939252
L_LogPerCa~p |  -1.932584    .386362    -5.00   0.000    -2.696588   -1.168579
L_CivilWar~p |  -.1411211   .6521098    -0.22   0.829    -1.430623    1.148381
L_REGION_D~E |   .0535507   .0119348     4.49   0.000     .0299503     .077151
L_WORLD_DE~E |   .2521313   .0211184    11.94   0.000     .2103712    .2938915
D_LogperCa~t |  -1.067429   2.934042    -0.36   0.717    -6.869296    4.734437
D_Region_D~e |   .4541046   .0678336     6.69   0.000     .3199683    .5882409
D_World_De~e |   .6979717   .0692874    10.07   0.000     .5609606    .8349827

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9564834   .1326608    -7.21   0.000    -1.218811   -.6941557
------------------------------------------------------------------------------
```

RUNNING THE MODEL AGAIN WITH A LAG OF THE DEPENDENT VARIABLE AND ERRORS CLUSTERED BY YEAR

```
xi: regress D_polity_s_interp L_D_polity_s_interp L_polity_s_interp  L_tot_oil_inc_interp
D_tot_oil_inc_interp  L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE
L_WORLD_DEM_DIFFUSE  D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year
i.hmccode, r cluster(year)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Linear regression                                      Number of obs =    4622
                                                       F( 32,    33) =       .
                                                       Prob > F      =       .
                                                       R-squared     =  0.1449
                                                       Root MSE      =  8.2424

                                  (Std. Err. adjusted for 34 clusters in year)
------------------------------------------------------------------------------
             |               Robust
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_polity~p |   .0834275   .0214987     3.88   0.000      .039688    .1271669
L_polity_s~p |  -.1486734     .01564    -9.51   0.000    -.1804933   -.1168536
L_tot_oil_~p |   .1422037   .0214368     6.63   0.000     .0985901    .1858173
D_tot_oil_~p |   .0367712   .0299231     1.23   0.228    -.0241077    .0976502
L_LogPerCa~p |  -1.932584   .3999959    -4.83   0.000    -2.746381   -1.118786
L_CivilWar~p |  -.1411211   .6751215    -0.21   0.836    -1.514666    1.232424
L_REGION_D~E |   .0535507    .012356     4.33   0.000     .0284122    .0786892
L_WORLD_DE~E |  -.0998199   .0353274    -2.83   0.008    -.1716941   -.0279457
D_LogperCa~t |  -1.067429   3.037579    -0.35   0.728    -7.247429    5.112571
D_Region_D~e |   .4541046   .0702273     6.47   0.000      .311226    .5969831
D_World_De~e |  -.2914908   .0561859    -5.19   0.000     -.405802   -.1771797


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.9564834   .1373422    -6.96   0.000    -1.235908   -.6770586
------------------------------------------------------------------------------
```

GENERATING A COMPARATIVE BASELINE: THE BIVARIATE MODEL

RERUNNING WITHOUT THE CONTROL VARIABLES INCLUDED ON THE CONTROL VARIABLES OBSERVATIONS DATASET (COLUMN 6)

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(26 missing values
generated)


Results for H0: no cointegration
With 138 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.595  |   -3.300  |   0.001   |      0.160     |
     Ga    | -7.6e+10  | -1.3e+11  |   0.000   |      0.000     |
     Pt    | -7.8e+09  | -9.0e+09  |   0.000   |      0.000     |
     Pa    | -2.7e+09  | -5.3e+09  |   0.000   |      0.000     |
-----------------------------------------------------------------+


. xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(26 missing values
generated)


Results for H0: no cointegration
With 138 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.603  |   -3.417  |   0.000   |      0.080     |
     Ga    | -9.0e+11  | -1.5e+12  |   0.000   |      0.000     |
     Pt    | -1.7e+10  | -1.9e+10  |   0.000   |      0.000     |
     Pa    | -6.4e+09  | -1.2e+10  |   0.000   |      0.000     |
-----------------------------------------------------------------+
```

These commands were used to generate the special dataset:

keep if LogPerCapGDP_interp != . & CivilWar_Interp != . & REGION_DEM_DIFFUSE != . & WORLD_DEM_DIFFUSE != .

This ECM Co-integration test is run on a special dataset that has the following characteristics:

- It is truncated to observations on those for which there is data for all covariates, including control variables, measured contemporaneously.
- It is truncated to the countries that have more than 21 observations, so that this test is comparable to the one run with all of the control variables included as conditioning variables in the ECM test.

ESTIMATING THE BIVARIATE MODEL ON THE CONTROL VARIABLE DATASET.

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.year i.hmccode if D_polity_s_interp != . & L_polity_s_interp !=. & L_tot_oil_inc_interp
!= . & D_tot_oil_inc_interp  != . & L_LogPerCapGDP_interp != . & L_CivilWar_interp != . &
L_REGION_DEM_DIFFUSE != . & L_WORLD_DEM_DIFFUSE != . & D_LogperCapGDP_int != . &
D_Region_Dem_Diffuse != . & D_World_Dem_Diffuse != ., lag(1)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4631
Method: Pooled OLS                               Number of groups  =       138
Group variable (i): hmccode                      F(177,   137)     =  5.69e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0962
                                                 Root MSE          =    8.4896

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1240208   .0171715    -7.22   0.000    -.1579764   -.0900653
L_tot_oil_~p |   .0788464   .0157344     5.01   0.000     .0477327    .1099602
D_tot_oil_~p |   .0010887   .0288257     0.04   0.970    -.0559121    .0580896

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6357516   .0731533    -8.69   0.000    -.7804071    -.491096
------------------------------------------------------------------------------
.
```

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year if Total_Oil_Income_PC_interp >=.338228,
lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       951
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(399,    41)     =  5.24e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1753
                                                 Root MSE          =    6.2697

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1274635   .0377572    -3.38   0.002    -.2037158   -.0512112
L_tot_oil_~p |   .0238112   .0138751     1.72   0.094    -.0042101    .0518325
D_tot_oil_~p |  -.0530952   .0512196    -1.04   0.306    -.1565352    .0503448
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1868079   .1226393    -1.52   0.135     -.434483    .0608671
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year if Total_Oil_Income_PC_interp >=.338228,
cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3121.562   Log-Lik Full Model:          -3029.912
D(551):                       6059.824   LR(40):                        183.300
                                         Prob > LR:                       0.000
R2:                              0.175   Adjusted R2:                     0.055
AIC:                             7.213   AIC*n:                        6859.824
BIC:                          2281.334   BIC':                           91.001
BIC used by Stata:            6340.982   AIC used by Stata:            6141.824

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
. xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       951
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(400,    41)     =  7.67e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1753
                                                 Root MSE          =    6.2735

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1274787   .0377661    -3.38   0.002    -.2037489   -.0512084
L_tot_oil_~p |   .0242038   .0149078     1.62   0.112    -.0059032    .0543107
D_tot_oil_~p |  -.0531023   .0513563    -1.03   0.307    -.1568185     .050614
 L_D_TOI_INT |  -.0020937   .0286299    -0.07   0.942    -.0599129    .0557256


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1898654   .1298143    -1.46   0.151    -.4520307    .0722999
------------------------------------------------------------------------------



quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.338228, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3121.562   Log-Lik Full Model:         -3029.911
D(550):                       6059.823   LR(40):                       183.301
                                         Prob > LR:                      0.000
R2:                              0.175   Adjusted R2:                    0.054
AIC:                             7.215   AIC*n:                       6861.823
BIC:                          2288.190   BIC':                          91.000
BIC used by Stata:            6340.981   AIC used by Stata:           6141.823

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       950
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(401,    41)     =  2.51e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1754
                                                 Root MSE          =    6.2809

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1274788   .0377947    -3.37   0.002    -.2038068   -.0511508
L_tot_oil_~p |   .0243775   .0142378     1.71   0.094    -.0043763    .0531314
D_tot_oil_~p |  -.0531539   .0513791    -1.03   0.307     -.156916    .0506083
 L_D_TOI_INT |  -.0023568   .0278141    -0.08   0.933    -.0585286    .0538149
L2_D_TOI_INT |  -.0008598   .0300608    -0.03   0.977    -.0615689    .0598493


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1912282    .121071    -1.58   0.122     -.435736    .0532796
------------------------------------------------------------------------------

.


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.338228, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3118.776   Log-Lik Full Model:         -3027.185
D(548):                       6054.371   LR(40):                       183.182
                                         Prob > LR:                      0.000
R2:                              0.175   Adjusted R2:                    0.053
AIC:                             7.219   AIC*n:                       6858.371
BIC:                          2297.030   BIC':                          91.077
BIC used by Stata:            6335.486   AIC used by Stata:           6136.371

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       949
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(402,    41)     =  2.31e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1757
                                                 Root MSE          =    6.2873

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1274742   .0378303    -3.37   0.002    -.2038741   -.0510743
L_tot_oil_~p |   .0242034   .0163151     1.48   0.146    -.0087457    .0571526
D_tot_oil_~p |  -.0530281   .0513345    -1.03   0.308    -.1567002    .0506439
 L_D_TOI_INT |  -.0022287   .0318264    -0.07   0.945    -.0665035     .062046
L2_D_TOI_INT |  -.0007739   .0350968    -0.02   0.983    -.0716533    .0701055
L3_D_TOI_INT |   .0010723   .0366667     0.03   0.977    -.0729776    .0751222


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1898694   .1298237    -1.46   0.151    -.4520538     .072315
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.338228, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3115.990   Log-Lik Full Model:          -3024.328
D(546):                       6048.655   LR(39):                        183.325
                                         Prob > LR:                       0.000
R2:                              0.176   Adjusted R2:                     0.052
AIC:                             7.223   AIC*n:                        6854.655
BIC:                          2305.602   BIC':                           84.035
BIC used by Stata:            6322.871   AIC used by Stata:            6128.655

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       948
Method: Pooled OLS                               Number of groups  =        41
Group variable (i): hmccode                      F(403,    40)     =  1.56e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1762
                                                 Root MSE          =    6.2877

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1275123   .0377964    -3.37   0.002    -.2039016    -.051123
L_tot_oil_~p |   .0339827   .0206344     1.65   0.107    -.0077209    .0756864
D_tot_oil_~p |  -.0622797   .0587862    -1.06   0.296    -.1810911    .0565316
 L_D_TOI_INT |  -.0123949   .0319318    -0.39   0.700    -.0769314    .0521417
L2_D_TOI_INT |  -.0146418   .0342269    -0.43   0.671    -.0838169    .0545333
L3_D_TOI_INT |  -.0109162   .0307944    -0.35   0.725     -.073154    .0513215
L4_D_TOI_INT |  -.0629999   .0364019    -1.73   0.091     -.136571    .0105711


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2665055   .1641674    -1.62   0.112    -.5983003    .0652892
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode i.year
if Total_Oil_Income_PC_interp >=.338228, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3112.962   Log-Lik Full Model:         -3021.116
D(544):                       6042.231   LR(39):                       183.692
                                         Prob > LR:                      0.000
R2:                              0.176   Adjusted R2:                    0.052
AIC:                             7.226   AIC*n:                       6850.231
BIC:                          2313.462   BIC':                          83.628
BIC used by Stata:            6316.405   AIC used by Stata:           6122.231

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT
L5_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       948
Method: Pooled OLS                               Number of groups  =        41
Group variable (i): hmccode                      F(404,    40)     =  3.24e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1763
                                                 Root MSE          =    6.2909

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1272986   .0377301    -3.37   0.002    -.2035539   -.0510433
L_tot_oil_~p |   .0272259   .0195669     1.39   0.172    -.0123203    .0667721
D_tot_oil_~p |  -.0754655   .0721354    -1.05   0.302    -.2212566    .0703256
 L_D_TOI_INT |  -.0038042   .0241399    -0.16   0.876    -.0525929    .0449844
L2_D_TOI_INT |  -.0105389   .0284636    -0.37   0.713    -.0680659    .0469882
L3_D_TOI_INT |  -.0044922   .0223597    -0.20   0.842    -.0496829    .0406984
L4_D_TOI_INT |  -.0587904   .0287581    -2.04   0.048    -.1169127    -.000668
L5_D_TOI_INT |   .0293082   .0396454     0.74   0.464    -.0508181    .1094345

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2138745    .164749    -1.30   0.202    -.5468446    .1190956
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year if Total_Oil_Income_PC_interp >=.338228, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -3112.962   Log-Lik Full Model:         -3021.023
D(543):                       6042.046   LR(39):                       183.877
                                         Prob > LR:                      0.000
R2:                              0.176   Adjusted R2:                    0.051
AIC:                             7.228   AIC*n:                       6852.046
BIC:                          2320.132   BIC':                          83.443
BIC used by Stata:            6316.221   AIC used by Stata:           6122.046

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 5, COLUMN 3 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

THRESHOLD MODELS, FINDING THE CUTOFF POINT TO TRUNCATE THE DATASET

```
sum  Total_Oil_Income_PC_interp

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
Total_Oil_~p |     15096     .338228    2.616071          0    78.5888
```

```
drop if Total_Oil_Income_PC_interp <.338228
(14487 observations deleted)
```

However, we must further drop some countries:

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12)
bootstrap(25)

Continuous time-series are required

Following series contain holes:

----------------------
  hmccode |      Freq.
----------+-----------
        2 |          2
       70 |          4
      101 |          1
      130 |          3
      160 |          1
      200 |          2
      339 |          2
      365 |          1
      390 |          1
      475 |          1
      484 |          1
      540 |          2
      615 |          3
      630 |          1
      645 |          2
      651 |          1
      652 |          4
      679 |          1
      820 |          5
      900 |          4
----------------------
```

United States, Mexico, Venezuela, Ecuador, Argentina, UK, Albania, Russia, Denmark, Nigeria, Congo, Angola, Algeria, Iran, Iraq, Egypt, Syria, Yemen, Malaysia, Australia,

drop if hmccode == 2 | hmccode == 70 | hmccode == 101 | hmccode == 130 | hmccode == 160 | hmccode == 200 | hmccode == 339 | hmccode == 365 | hmccode == 390 | hmccode == 475 | hmccode == 484 | hmccode == 540 | hmccode == 615 | hmccode == 630 | hmccode == 645 | hmccode == 651 | hmccode == 652 | hmccode == 679 | hmccode == 820 | hmccode == 900

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      135 |          2
      360 |          2
      373 |          7
      483 |          2
      616 |          6
      666 |          2
      701 |          7
      705 |          7
      850 |          2
      860 |          3
----------------------
```

Peru, Romania, Azerbaijan, Chad, Tunisia, Israel, Tusmekistan, Kazakhstan, East Timor, and Indonesia.

drop if **hmccode == 2 | hmccode == 70 | hmccode == 373 | hmccode == 390 | hmccode == 475** | hmccode == 540 | hmccode == 705 | hmccode == 860 | hmccode == 900

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(6)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(3 missing values
generated)


Results for H0: no cointegration
With 12 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.533  |   -0.710  |   0.239   |      0.400     |
     Ga    |   -8.790  |    1.641  |   0.950   |      0.520     |
     Pt    |   -5.653  |    1.903  |   0.972   |      0.240     |
     Pa    |   -8.010  |    0.521  |   0.699   |      0.560     |
-----------------------------------------------------------------+
```

TRYING AGAIN WITH ONE LAG OF TOTAL OIL INCOME

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(6)
bootstrap(25)
With 1 lag(s), 1 lead(s) and a constant and a trend at least 12 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      411 |         11
----------------------
```

We have to drop Equatorial Guinnea

```
. xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(6)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(3 missing values
generated)


Results for H0: no cointegration
With 11 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.533  |   -0.679  |   0.248   |      0.120     |
     Ga    |   -9.742  |    1.107  |   0.866   |      0.160     |
     Pt    |   -5.783  |    1.398  |   0.919   |      0.200     |
     Pa    |   -9.796  |   -0.467  |   0.320   |      0.200     |
-----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year if L.Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       922
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(399,    41)     =   7407.94
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1904
                                                 Root MSE          =    6.3014

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1366838   .0405362    -3.37   0.002    -.2185483   -.0548194
L_tot_oil_~p |    .010881   .0161438     0.67   0.504     -.021722     .043484
D_tot_oil_~p |  -.1330478   .0761787    -1.75   0.088    -.2868938    .0207981


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0796069   .1219435    -0.65   0.518    -.3258768     .166663
------------------------------------------------------------------------------
```

RERUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year if L.Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_20-698    (naturally coded; _Ihmccode_20 omitted)
i.year            _Iyear_1936-2006    (naturally coded; _Iyear_1936 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       453
Method: Pooled OLS                               Number of groups  =        12
Group variable (i): hmccode                      F( 86,    11)     =      1.63
maximum lag: 1                                   Prob > F          =    0.1880
                                                 R-squared         =    0.1555
                                                 Root MSE          =    1.8318

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0863903   .0323893    -2.67   0.022    -.1576787    -.015102
L_tot_oil_~p |   .0139716    .009626     1.45   0.175     -.007215    .0351583
D_tot_oil_~p |  -.0070873   .0135663    -0.52   0.612    -.0369465    .0227719


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1617267   .0925906    -1.75   0.109    -.3655173    .0420638
------------------------------------------------------------------------------

.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(6)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      411 |         11
```

We drop Equatorial Guinnea

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(6)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(3 missing values
generated)


Results for H0: no cointegration
With 11 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.901  |    0.409  |   0.659   |      0.200     |
     Ga    |   -6.764  |    4.498  |   1.000   |      0.720     |
     Pt    |   -5.684  |    3.570  |   1.000   |      0.400     |
     Pa    |   -6.506  |    3.373  |   1.000   |      0.760     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(6)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(3 missing values
generated)


Results for H0: no cointegration
With 11 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.913	0.368	0.643	0.240
Ga	-5.692	4.884	1.000	0.720
Pt	-5.347	3.909	1.000	0.200
Pa	-5.018	3.920	1.000	0.640

.

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year if
L.Total_Oil_Income_PC_interp >=.338228, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       919
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(406,    41)     =   3815.43
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2087
                                                 Root MSE          =    6.2613

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1485028   .0447855    -3.32   0.002     -.238949   -.0580567
L_tot_oil_~p |  -.0002724    .021602    -0.01   0.990    -.0438985    .0433537
D_tot_oil_~p |  -.1312738   .0668087    -1.96   0.056    -.2661968    .0036492
L_LogPerCa~p |   .6213032   .5120041     1.21   0.232    -.4127101    1.655317
L_CivilWar~p |   2.168692   1.354852     1.60   0.117    -.5674868    4.904871
L_REGION_D~E |   .0096063   .0251742     0.38   0.705    -.0412341    .0604467
L_WORLD_DE~E |    -.27327   .0879563    -3.11   0.003    -.4509014   -.0956386
D_LogperCa~t |  -2.101453   3.272493    -0.64   0.524    -8.710386     4.50748
D_Region_D~e |   .2766713   .0825605     3.35   0.002     .1099369    .4434057
D_World_De~e |   .0746753    .081287     0.92   0.364    -.0894872    .2388378


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0018342   .1453984     0.01   0.990    -.2918037    .2954722
------------------------------------------------------------------------------
```

RERUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_20-698    (naturally coded; _Ihmccode_20 omitted)
i.year            _Iyear_1936-2006    (naturally coded; _Iyear_1936 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       438
Method: Pooled OLS                               Number of groups  =        11
Group variable (i): hmccode                      F( 92,    10)     =      1.68
maximum lag: 1                                   Prob > F          =    0.1873
                                                 R-squared         =    0.1649
                                                 Root MSE          =    1.8560

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0841475   .0299669    -2.81   0.019     -.150918   -.0173771
L_tot_oil_~p |   .0217818   .0139989     1.56   0.151    -.0094097    .0529734
D_tot_oil_~p |  -.0101851   .0133881    -0.76   0.464    -.0400156    .0196453
L_LogPerCa~p |  -.0737292   .2761421    -0.27   0.795    -.6890122    .5415539
L_CivilWar~p |  (dropped)
L_REGION_D~E |  -.0273015    .043931    -0.62   0.548    -.1251858    .0705829
L_WORLD_DE~E |  -.0022092   .0170919    -0.13   0.900    -.0402923    .0358739
D_LogperCa~t |   2.024533   1.529785     1.32   0.215     -1.38404    5.433106
D_Region_D~e |   .0053441   .0382865     0.14   0.892    -.0799636    .0906519
D_World_De~e |  -.0070424   .0619779    -0.11   0.912    -.1451376    .1310529

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.258853   .1198997    -2.16   0.056    -.5260061    .0083001
------------------------------------------------------------------------------
```

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year if Total_Oil_Income_PC_interp >=.9708862,
lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       529
Method: Pooled OLS                               Number of groups  =        28
Group variable (i): hmccode                      F(399,    27)     = 250145.45
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3785
                                                 Root MSE          =    3.3081

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1069607   .0463188    -2.31   0.029    -.2019991   -.0119223
L_tot_oil_~p |     .01042   .0116917     0.89   0.381    -.0135693    .0344093
D_tot_oil_~p |  -.0663168   .0364455    -1.82   0.080    -.1410968    .0084633
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0974191    .106817    -0.91   0.370    -.3165895    .1217513
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year if Total_Oil_Income_PC_interp >=.9708862,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1459.368   Log-Lik Full Model:          -1333.573
D(129):                       2667.146   LR(22):                        251.590
                                         Prob > LR:                       0.000
R2:                              0.378   Adjusted R2:                     0.251
AIC:                             6.554   AIC*n:                        3467.146
BIC:                          1858.188   BIC':                         -113.628
BIC used by Stata:            2811.379   AIC used by Stata:            2713.146

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       529
Method: Pooled OLS                               Number of groups  =        28
Group variable (i): hmccode                      F(400,    27)     =  3.98e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3786
                                                 Root MSE          =    3.3116

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1071148   .0464776    -2.30   0.029     -.202479   -.0117507
L_tot_oil_~p |   .0122072   .0132399     0.92   0.365    -.0149588    .0393732
D_tot_oil_~p |  -.0662388   .0365815    -1.81   0.081    -.1412977    .0088202
 L_D_TOI_INT |  -.0095458   .0322896    -0.30   0.770    -.0757986    .0567069

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1139634   .1139594    -1.00   0.326    -.3477889     .119862
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.9708862, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1459.368   Log-Lik Full Model:         -1333.534
D(128):                       2667.067   LR(22):                       251.669
                                         Prob > LR:                      0.000
R2:                              0.379   Adjusted R2:                    0.249
AIC:                             6.558   AIC*n:                       3469.067
BIC:                          1864.381   BIC':                        -113.707
BIC used by Stata:            2811.300   AIC used by Stata:           2713.067

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       529
Method: Pooled OLS                               Number of groups  =        28
Group variable (i): hmccode                      F(401,    27)     = 902860.19
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3786
                                                 Root MSE          =    3.3153

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1070029   .0464301    -2.30   0.029     -.2022696   -.0117363
L_tot_oil_~p |   .0107878   .0117224     0.92   0.366     -.0132646    .0348402
D_tot_oil_~p |  -.0659609   .0359618    -1.83   0.078     -.1397485    .0078266
 L_D_TOI_INT |  -.0080357    .028452    -0.28   0.780     -.0664144    .0503429
L2_D_TOI_INT |   .0078327    .026284     0.30   0.768     -.0460976     .061763
        year |   .0024618   .0010981     2.24   0.033      .0002088    .0047149


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1008175   .1013758    -0.99   0.329     -.3088234    .1071884
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.9708862, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1459.368   Log-Lik Full Model:         -1333.507
D(127):                       2667.014   LR(23):                       251.722
                                         Prob > LR:                      0.000
R2:                              0.379   Adjusted R2:                    0.248
AIC:                             6.561   AIC*n:                       3471.014
BIC:                          1870.598   BIC':                        -107.489
BIC used by Stata:            2817.518   AIC used by Stata:           2715.014

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       528
Method: Pooled OLS                               Number of groups  =        28
Group variable (i): hmccode                      F(402,    27)     =  13095.99
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3804
                                                 Root MSE          =    3.3183

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1069854   .0464302    -2.30   0.029    -.2022524   -.0117184
L_tot_oil_~p |   .0099845   .0125255     0.80   0.432    -.0157157    .0356846
D_tot_oil_~p |  -.0658318   .0357308    -1.84   0.076    -.1391454    .0074818
 L_D_TOI_INT |  -.0070576   .0281149    -0.25   0.804    -.0647446    .0506295
L2_D_TOI_INT |   .0087445   .0273687     0.32   0.752    -.0474114    .0649003
L3_D_TOI_INT |   .0048629   .0112615     0.43   0.669    -.0182438    .0279695


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0933257   .1095553    -0.85   0.402    -.3181145    .1314632
------------------------------------------------------------------------------


. quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.9708862, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1457.106   Log-Lik Full Model:          -1330.752
D(125):                       2661.504   LR(22):                        252.708
                                         Prob > LR:                       0.000
R2:                              0.380   Adjusted R2:                     0.248
AIC:                             6.567   AIC*n:                        3467.504
BIC:                          1877.867   BIC':                         -114.787
BIC used by Stata:            2805.693   AIC used by Stata:            2707.504

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       527
Method: Pooled OLS                               Number of groups  =        27
Group variable (i): hmccode                      F(403,    26)     =  1.60e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3786
                                                 Root MSE          =    3.3221

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1069779   .0464343    -2.30   0.029    -.202425   -.0115309
L_tot_oil_~p |   .0092108   .0126959     0.73   0.475   -.0168861    .0353076
D_tot_oil_~p |  -.0650684   .0357387    -1.82   0.080   -.1385303    .0083935
 L_D_TOI_INT |  -.0061814   .0290726    -0.21   0.833   -.0659409    .0535781
L2_D_TOI_INT |   .0099392   .0271279     0.37   0.717    -.045823    .0657015
L3_D_TOI_INT |     .00595   .0127037     0.47   0.643   -.0201629    .0320629
L4_D_TOI_INT |   .0050454    .011476     0.44   0.664   -.0185438    .0286347

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0860995     .11004    -0.78   0.441      -.31229    .1400909
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode i.year
if Total_Oil_Income_PC_interp >=.9708862, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1454.085   Log-Lik Full Model:         -1328.721
D(123):                       2657.442   LR(22):                       250.728
                                         Prob > LR:                      0.000
R2:                              0.379   Adjusted R2:                    0.245
AIC:                             6.576   AIC*n:                       3465.442
BIC:                          1886.576   BIC':                        -112.849
BIC used by Stata:            2801.588   AIC used by Stata:           2703.442

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT  L5_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       527
Method: Pooled OLS                               Number of groups  =        27
Group variable (i): hmccode                      F(404,    26)     =  1.65e+08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3786
                                                 Root MSE          =    3.3259

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1069805   .0464285    -2.30   0.029    -.2024158   -.0115453
L_tot_oil_~p |   .0093177   .0142827     0.65   0.520    -.0200409    .0386763
D_tot_oil_~p |  -.0648561   .0418689    -1.55   0.133    -.1509188    .0212067
 L_D_TOI_INT |   -.006325   .0288903    -0.22   0.828    -.0657098    .0530598
L2_D_TOI_INT |   .0098742   .0270875     0.36   0.718    -.0458049    .0655533
L3_D_TOI_INT |   .0058487   .0123693     0.47   0.640    -.0195767    .0312741
L4_D_TOI_INT |   .0049732   .0114595     0.43   0.668    -.0185821    .0285286
L5_D_TOI_INT |  -.0004864   .0188381    -0.03   0.980    -.0392088    .0382359
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0870971   .1264471    -0.69   0.497    -.3470129    .1728187
------------------------------------------------------------------------------
```

```
. quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_I
> NT  L5_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp >=.9708862,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -1454.085   Log-Lik Full Model:         -1328.721
D(122):                       2657.442   LR(22):                       250.728
                                         Prob > LR:                      0.000
R2:                              0.379   Adjusted R2:                    0.243
AIC:                             6.580   AIC*n:                       3467.442
BIC:                          1892.843   BIC':                        -112.849
BIC used by Stata:            2801.587   AIC used by Stata:           2703.442

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 5, COLUMN 4 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE,

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
THRESHOLD MODELS, FINDING THE CUTOFF POINT TO TRUNCATE THE DATASET

sum  Total_Oil_Income_PC_interp if Total_Oil_Income_PC_interp != 0

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
Total_Oil_~p |      5259    .9708862    4.362722   1.19e-07    78.5888


drop if Total_Oil_Income_PC_interp <.9708862
(14487 observations deleted)


However, we must further drop some countries:

xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12)
bootstrap(25)

Continuous time-series are required

Following series contain holes:


----------------------
  hmccode |      Freq.
----------+-----------
       20 |          3
       52 |          3
      101 |          5
      200 |          1
      365 |          1
      484 |          2
      615 |          1
      630 |          1
      645 |          1
      690 |          1
      692 |          1
```

Canada, Trinidad and Tobago, Venezuela, United Kingdom, Russia, Congo, Algeria, Iran, Iraq, Kuwait, and Bahrain.

drop if **hmccode == 20 | hmccode == 52 | hmccode == 101 | hmccode == 200 | hmccode == 365 |** hmccode == 484 | hmccode == 615 | hmccode == 630 | hmccode == 645 | hmccode == 690 | hmccode == 692

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
        2 |          3
       70 |          2
      373 |          2
      390 |          3
      475 |          1
      540 |          1
      705 |          3
      860 |          2
      900 |          1
```

```
United States, Mexico, Azerbaijan, Denmark, Nigeria, Angola, Kazakhstan, East Timor, and
Australia.
```

drop if **hmccode == 2 | hmccode == 70 | hmccode == 373 | hmccode == 390 | hmccode == 475** | hmccode == 540 | hmccode == 705 | hmccode == 860 | hmccode == 900

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(5)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests........

Results for H0: no cointegration
With 8 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -1.590  |    2.704  |   0.997   |      0.840     |
     Ga    |   -5.405  |    2.748  |   0.997   |      0.880     |
     Pt    |   -2.305  |    4.196  |   1.000   |      0.760     |
     Pa    |   -4.871  |    1.873  |   0.970   |      0.840     |
-----------------------------------------------------------------+
```

TRYING AGAIN WITH ONE LAG OF TOTAL OIL INCOME

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(5)
bootstrap(25)
With 1 lag(s), 1 lead(s) and a constant and a trend at least 12 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      411 |         10
```

We have to drop Equatorial Guinnea

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(5)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests.......

Results for H0: no cointegration
With 7 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -1.995   |    1.208   |   0.887    |      0.800     |
     Ga    |   -7.109   |    1.908   |   0.972    |      0.760     |
     Pt    |   -3.730   |    2.126   |   0.983    |      0.480     |
     Pa    |   -9.741   |   -0.349   |   0.364    |      0.520     |
-----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year if L.Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       511
Method: Pooled OLS                               Number of groups  =        27
Group variable (i): hmccode                      F(399,    26)     =    191.98
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2900
                                                 Root MSE          =    3.2967

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1249679   .0553045    -2.26   0.032    -.2386479   -.0112879
L_tot_oil_~p |   .0166374   .0116825     1.42   0.166    -.0073763    .0406512
D_tot_oil_~p |  -.0882065   .0443361    -1.99   0.057    -.1793406    .0029276


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1331335   .0980312    -1.36   0.186    -.3346395    .0683725
------------------------------------------------------------------------------
```

RERUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_385-698   (naturally coded; _Ihmccode_385 omitted)
i.year            _Iyear_1949-2006    (naturally coded; _Iyear_1949 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       284
Method: Pooled OLS                               Number of groups  =         8
Group variable (i): hmccode                      F( 68,     7)     =      0.30
maximum lag: 1                                   Prob > F          =    0.9958
                                                 R-squared         =    0.2291
                                                 Root MSE          =    1.1449

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0333316   .0335927    -0.99   0.354    -.1127657    .0461025
L_tot_oil_~p |   .0139381    .010253     1.36   0.216    -.0103063    .0381825
D_tot_oil_~p |   .0067084   .0059545     1.13   0.297    -.0073718    .0207885


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4181657   .1941554    -2.15   0.068    -.8772702    .0409388
------------------------------------------------------------------------------
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(5)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.

Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      411 |         10
```

We must drop Equatorial Guinnea if we are going to include the control variables in the ECM cointegration test.

We use the dataset where we drop EG.

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(5)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests.......

Results for H0: no cointegration
With 7 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.527  |   -1.472  |   0.071   |      0.080     |
     Ga    |   -6.289  |    3.725  |   1.000   |      0.400     |
     Pt    |   -5.597  |    1.781  |   0.963   |      0.040     |
     Pa    |   -7.847  |    2.298  |   0.989   |      0.360     |
----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(5)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests.......

Results for H0: no cointegration
With 7 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.071  |   -0.162  |   0.436   |      0.080     |
     Ga    |   -5.554  |    3.936  |   1.000   |      0.440     |
     Pt    |   -4.579  |    2.803  |   0.998   |      0.120     |
     Pa    |  -10.482  |    1.525  |   0.936   |      0.400     |
----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode if
L.Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.year           _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       511
Method: Pooled OLS                               Number of groups  =        27
Group variable (i): hmccode                      F(406,    26)     =  25729.73
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3171
                                                 Root MSE          =    3.2524

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1290681   .0606074    -2.13   0.043    -.2536483   -.0044879
L_tot_oil_~p |   .0162403   .0144683     1.12   0.272    -.0134996    .0459803
D_tot_oil_~p |  -.0867735   .0394001    -2.20   0.037    -.1677616   -.0057855
L_LogPerCa~p |   .0153114   .3544458     0.04   0.966    -.7132624    .7438851
L_CivilWar~p |     4.4443   4.291367     1.04   0.310    -4.376732    13.26533
L_REGION_D~E |  -.0179685   .0214597    -0.84   0.410    -.0620795    .0261426
L_WORLD_DE~E |   .2332341   .1117578     2.09   0.047     .0035127    .4629555
D_LogperCa~t |  -.5551752   2.023637    -0.27   0.786     -4.71482     3.60447
D_Region_D~e |   .1035562   .0815509     1.27   0.215    -.0640739    .2711864
D_World_De~e |  -1.255946   .5515026    -2.28   0.031    -2.389576   -.1223165


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1258277   .1298559    -0.97   0.341    -.3927503     .141095
------------------------------------------------------------------------------
```

RERUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp  L_polity_s_interp  L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.year i.hmccode, lag(1)
i.year            _Iyear_1949-2006    (naturally coded; _Iyear_1949 omitted)
i.hmccode         _Ihmccode_385-698   (naturally coded; _Ihmccode_385 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       274
Method: Pooled OLS                               Number of groups  =         7
Group variable (i): hmccode                      F( 74,     6)     =      0.23
maximum lag: 1                                   Prob > F          =    0.9992
                                                 R-squared         =    0.2666
                                                 Root MSE          =    1.1514

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   .0013874   .0238763     0.06   0.956    -.0570358    .0598106
L_tot_oil_~p |   .0117154   .0130339     0.90   0.403    -.0201773    .0436081
D_tot_oil_~p |   .0103088   .0100787     1.02   0.346    -.0143528    .0349704
L_LogPerCa~p |  -.0282084   .1677566    -0.17   0.872     -.438694    .3822771
L_CivilWar~p |  (dropped)
L_REGION_D~E |  -.1996097   .1526198    -1.31   0.239    -.5730569    .1738375
L_WORLD_DE~E |   -.012979   .0088824    -1.46   0.194    -.0347134    .0087554
D_LogperCa~t |   .8697654   .8731462     1.00   0.358    -1.266746    3.006277
D_Region_D~e |   -.107302   .0871533    -1.23   0.264    -.3205585    .1059545
D_World_De~e |   .1860617   .1487847     1.25   0.258    -.1780014    .5501249

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   8.444114   149.6243     0.06   0.957    -357.6733    374.5616
------------------------------------------------------------------------------
.
```

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year if Total_Oil_Income_PC_interp >= 2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(399,    13)     =      2.43
maximum lag: 1                                   Prob > F          =    0.0345
                                                 R-squared         =    0.2408
                                                 Root MSE          =    1.9403

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1215274   .0425416    -2.86   0.013    -.2134329   -.0296219
L_tot_oil_~p |   .0271188   .0154858     1.75   0.103    -.0063362    .0605739
D_tot_oil_~p |   .0094976   .0176349     0.54   0.599    -.0286002    .0475955


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -.22315   .1065224    -2.09   0.056    -.4532776    .0069776
-----------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year if Total_Oil_Income_PC_interp >=2.954299,
cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -585.397
D(-103):                      1170.794   LR(11):                         81.834
                                         Prob > LR:                       0.000
R2:                              0.241   Adjusted R2:                     0.056
AIC:                             6.636   AIC*n:                        1970.794
BIC:                          1757.248   BIC':                          -19.203
BIC used by Stata:            1239.118   AIC used by Stata:            1194.794

(Indices saved in matrix fs_mod1)
```

```
1 LAG OF D.TOTAL OIL INCOME

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(400,    13)     =     12.14
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2425
                                                 Root MSE          =    1.9423

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1229264   .0416741    -2.95   0.011    -.2129577    -.032895
L_tot_oil_~p |    .030932   .0152302     2.03   0.063    -.0019708    .0638348
D_tot_oil_~p |   .0094545    .016026     0.59   0.565    -.0251675    .0440765
 L_D_TOI_INT |  -.0174817   .0427035    -0.41   0.689     -.109737    .0747736


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2516303   .1145656    -2.20   0.047    -.4991342   -.0041263
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=2.954299, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -585.075
D(-104):                      1170.150   LR(11):                         82.477
                                         Prob > LR:                       0.000
R2:                              0.242   Adjusted R2:                     0.054
AIC:                             6.640   AIC*n:                        1972.150
BIC:                          1762.298   BIC':                          -19.846
BIC used by Stata:            1238.475   AIC used by Stata:            1194.150

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(401,    13)     =     50.78
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2427
                                                 Root MSE          =    1.9460

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1235841   .0420688    -2.94   0.012    -.2144683   -.0326999
L_tot_oil_~p |   .0323853   .0153568     2.11   0.055     -.000791    .0655617
D_tot_oil_~p |   .0091844   .0154048     0.60   0.561    -.0240957    .0424645
 L_D_TOI_INT |  -.0190576   .0375591    -0.51   0.620    -.1001992     .062084
L2_D_TOI_INT |  -.0071505   .0296099    -0.24   0.813    -.0711187    .0568177

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2620508   .1062159    -2.47   0.028    -.4915163   -.0325854
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=2.954299, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -585.023
D(-105):                      1170.046   LR(11):                         82.581
                                         Prob > LR:                       0.000
R2:                              0.243   Adjusted R2:                     0.050
AIC:                             6.647   AIC*n:                        1974.046
BIC:                          1767.888   BIC':                          -19.950
BIC used by Stata:            1238.371   AIC used by Stata:            1194.046

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp
>=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(402,    13)     =    101.43
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2434
                                                 Root MSE          =    1.9494

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1240785   .0420131    -2.95   0.011    -.2148423   -.0333147
L_tot_oil_~p |    .034501   .0164679     2.10   0.056    -.0010757    .0700778
D_tot_oil_~p |   .0091018   .0155538     0.59   0.568       -.0245    .0427037
 L_D_TOI_INT |  -.0218793   .0381413    -0.57   0.576    -.1042786    .0605199
L2_D_TOI_INT |  -.0097112   .0297785    -0.33   0.750    -.0740437    .0546213
L3_D_TOI_INT |  -.0111811   .0140826    -0.79   0.441    -.0416047    .0192426


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2780582   .1125281    -2.47   0.028    -.5211604    -.034956
------------------------------------------------------------------------------


. quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >=2.954299, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -584.901
D(-106):                      1169.802   LR(11):                         82.826
                                         Prob > LR:                       0.000
R2:                              0.243   Adjusted R2:                     0.047
AIC:                             6.653   AIC*n:                        1975.802
BIC:                          1773.337   BIC':                          -20.195
BIC used by Stata:            1238.126   AIC used by Stata:            1193.802

(Indices saved in matrix fs_mod1)

.
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year if
Total_Oil_Income_PC_interp >= 2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(403,    13)     =    230.98
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2443
                                                 Root MSE          =    1.9524

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1244697   .0419599    -2.97   0.011    -.2151185   -.0338209
L_tot_oil_~p |   .0362493   .0166118     2.18   0.048     .0003617    .0721369
D_tot_oil_~p |   .0066201   .0158294     0.42   0.683    -.0275772    .0408175
 L_D_TOI_INT |  -.0242172    .038961    -0.62   0.545    -.1083873    .0599529
L2_D_TOI_INT |  -.0128127   .0287785    -0.45   0.663     -.074985    .0493595
L3_D_TOI_INT |  -.0141799    .015846    -0.89   0.387    -.0484131    .0200534
L4_D_TOI_INT |  -.0141836   .0170278    -0.83   0.420    -.0509699    .0226026

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2912299   .1142494    -2.55   0.024    -.5380509    -.044409
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode i.year
if Total_Oil_Income_PC_interp >=2.954299, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -584.724
D(-107):                      1169.448   LR(11):                         83.179
                                         Prob > LR:                       0.000
R2:                              0.244   Adjusted R2:                     0.044
AIC:                             6.658   AIC*n:                        1977.448
BIC:                          1778.677   BIC':                          -20.548
BIC used by Stata:            1237.773   AIC used by Stata:            1193.448

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT
L5_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp >=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       297
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(404,    13)     =    366.71
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2445
                                                 Root MSE          =    1.9562

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1239133   .0414499    -2.99   0.010    -.2134603   -.0343663
L_tot_oil_~p |   .0343623   .0158781     2.16   0.050     .0000598    .0686647
D_tot_oil_~p |   .0033806   .0177788     0.19   0.852    -.0350281    .0417894
 L_D_TOI_INT |  -.0216024   .0399305    -0.54   0.598     -.107867    .0646622
L2_D_TOI_INT |  -.0114003    .028078    -0.41   0.691    -.0720591    .0492585
L3_D_TOI_INT |  -.0121685   .0157162    -0.77   0.453    -.0461212    .0217842
L4_D_TOI_INT |  -.0124946   .0172323    -0.73   0.481    -.0497226    .0247335
L5_D_TOI_INT |   .0078937   .0157515     0.50   0.625    -.0261353    .0419227

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.277309   .1180621    -2.35   0.035    -.5323667   -.0222513
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year if Total_Oil_Income_PC_interp >=2.954299, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:       -626.314   Log-Lik Full Model:           -584.680
D(-108):                      1169.360   LR(11):                         83.267
                                         Prob > LR:                       0.000
R2:                              0.244   Adjusted R2:                     0.040
AIC:                             6.665   AIC*n:                        1979.360
BIC:                          1784.283   BIC':                          -20.636
BIC used by Stata:            1237.685   AIC used by Stata:            1193.360

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 5, COLUMN 5 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
THRESHOLD MODELS, FINDING THE CUTOFF POINT TO TRUNCATE THE DATASET

sum  Total_Oil_Income_PC_interp

    Variable |       Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
Total_Oil_~p |     15096     .338228    2.616071          0    78.5888



One standard deviation from the mean is: 2.954299

drop if Total_Oil_Income_PC_interp < 2.954299

(14487 observations deleted)

However, we must further drop some countries:
```

xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12) bootstrap(25)

Continuous time-series are required

Following series contain holes:

hmccode	Freq.
101	1
385	1
481	4
620	4
670	1
690	1
692	4
698	1

Venezuela, Norway, Gabon, Lybia, Saudi Arabia, Kuwait, Oman

drop if hmccode == 101 | hmccode == 385 | hmccode == 481 | hmccode == 620 | hmccode == 670 | hmccode == 690 | hmccode == 692 | hmccode == 698

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(12)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      411 |          7
      630 |          1
      645 |          6
----------------------
```

Equatorial Guinnea, Iraq, and Iran

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(4)
bootstrap(25)

Bootstrapping critical values under H0(90 missing values generated)
.(92 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(92 missing values generated)
(92 missing values generated)
.(88 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(92 missing values generated)
(90 missing values generated)
.(92 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(90 missing values generated)
(88 missing values generated)
.(90 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(92 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(92 missing values generated)
.(92 missing values generated)
(92 missing values generated)

Calculating Westerlund ECM panel cointegration tests...(112 missing values generated)


Results for H0: no cointegration
With 3 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |         . |         . |         . |      0.000     |
     Ga    |    0.000  |    3.059  |   0.999   |      0.000     |
     Pt    |         . |         . |         . |      0.000     |
     Pa    |         . |         . |         . |      0.000     |
-----------------------------------------------------------------+
```

TRYING AGAIN WITH ONE LAG OF TOTAL OIL INCOME

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(4)
bootstrap(25)
With 1 lag(s), 1 lead(s) and a constant and a trend at least 12 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
       52 |         11
----------------------
```

We have to drop Trinidad and Tobago

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(4)
bootstrap(25)

Bootstrapping critical values under H0(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)
.(80 missing values generated)
(80 missing values generated)

Calculating Westerlund ECM panel cointegration tests..(101 missing values generated)


Results for H0: no cointegration
With 2 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |         .  |         .  |        .  |      0.000     |
     Ga    |         .  |         .  |        .  |      0.000     |
     Pt    |         .  |         .  |        .  |      0.000     |
     Pa    |         .  |         .  |        .  |      0.000     |
-----------------------------------------------------------------+

.
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year if L.Total_Oil_Income_PC_interp >=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       290
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(399,    13)     =   6983.68
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2547
                                                 Root MSE          =    1.6921

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1017298   .0485573    -2.10   0.056    -.2066316    .0031719
L_tot_oil_~p |   .0323832   .0124978     2.59   0.022     .0053832    .0593831
D_tot_oil_~p |    .009297   .0275148     0.34   0.741     -.050145    .0687391


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.318325     .16087    -1.98   0.069    -.6658635    .0292135
------------------------------------------------------------------------------
```

NOW WE ADD CONTROL VARIABLES

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year if
L.Total_Oil_Income_PC_interp >=2.954299, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1777-2006    (naturally coded; _Iyear_1777 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       290
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(406,    13)     =  40752.56
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2718
                                                 Root MSE          =    1.6910

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0999114   .0532892    -1.87   0.083    -.2150357     .015213
L_tot_oil_~p |   .0342069   .0122752     2.79   0.015      .007688    .0607258
D_tot_oil_~p |   .0169018   .0288412     0.59   0.568    -.0454057    .0792093
L_LogPerCa~p |  -.0821468   .3763098    -0.22   0.831    -.8951146    .7308211
L_CivilWar~p |   3.508513   1.391409     2.52   0.026     .5025576    6.514468
L_REGION_D~E |  -.0919849   .0507264    -1.81   0.093    -.2015727    .0176028
L_WORLD_DE~E |  -.0847476   .0241897    -3.50   0.004    -.1370063   -.0324889
D_LogperCa~t |  -.4326268   2.269675    -0.19   0.852    -5.335962    4.470708
D_Region_D~e |   .0214281   .0531497     0.40   0.693    -.0933948    .1362509
D_World_De~e |  -.2978535   .0655632    -4.54   0.001    -.4394942   -.1562127


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3423724   .1857582    -1.84   0.088    -.7436787    .0589339
------------------------------------------------------------------------------

.
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3388
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(220,    19)     =      4.81
maximum lag: 4                                   Prob > F          =    0.0001
                                                 R-squared         =    0.1050
                                                 Root MSE          =    7.7175

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0887175   .0120473    -7.36   0.000    -.1139329   -.0635021
L_tot_oil_~p |    1.97593   .5267342     3.75   0.001     .8734623    3.078397
D_tot_oil_~p |   .9263935   .7352942     1.26   0.223    -.6125949    2.465382


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -22.27216   5.186401    -4.29   0.000    -33.12742    -11.4169
------------------------------------------------------------------------------

.
.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11806.510   Log-Lik Full Model:         -11618.583
D(3167):                     23237.166   LR(18):                        375.854
                                         Prob > LR:                       0.000
R2:                              0.105   Adjusted R2:                     0.044
AIC:                             6.989   AIC*n:                       23679.166
BIC:                         -2504.195   BIC':                         -229.550
BIC used by Stata:           23391.597   AIC used by Stata:           23275.166

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3372
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(221,    19)     =      3.58
maximum lag: 1                                   Prob > F          =    0.0010
                                                 R-squared         =    0.1053
                                                 Root MSE          =    7.7339

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0894013   .0123775    -7.22   0.000    -.1153077   -.0634949
L_tot_oil_~p |   2.051594   .5231534     3.92   0.001     .9566217    3.146567
D_tot_oil_~p |   .8872401   .6466571     1.37   0.186    -.4662287    2.240709
 L_D_TOI_INT |   -.860516   .6272184    -1.37   0.186    -2.173299    .4522672
        year |   .0001457   .0004879     0.30   0.768    -.0008754    .0011668


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -22.94815   5.149838    -4.46   0.000    -33.72688   -12.16941
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11757.875   Log-Lik Full Model:        -11570.310
D(3150):                     23140.620   LR(19):                       375.131
                                         Prob > LR:                      0.000
R2:                              0.105   Adjusted R2:                    0.044
AIC:                             6.994   AIC*n:                      23584.620
BIC:                         -2447.653   BIC':                        -220.789
BIC used by Stata:           23311.208   AIC used by Stata:          23182.620

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year if Total_Oil_Income_PC_interp, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       876
Method: Pooled OLS                               Number of groups  =        11
Group variable (i): hmccode                      F(222,    10)     =      2.51
maximum lag: 1                                   Prob > F          =    0.0535
                                                 R-squared         =    0.1616
                                                 Root MSE          =   10.6932

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1274143   .0218963    -5.82   0.000    -.1762023   -.0786262
L_tot_oil_~p |   3.020107   1.011987     2.98   0.014     .7652597    5.274953
D_tot_oil_~p |   1.351862   .6608348     2.05   0.068    -.1205697    2.824294
 L_D_TOI_INT |  -1.375515   1.026126    -1.34   0.210    -3.661866    .9108355
L2_D_TOI_INT |   .3939761   .8086786     0.49   0.637    -1.407872    2.195824

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -23.70305   6.471428    -3.66   0.004    -38.12228   -9.283806
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11710.054   Log-Lik Full Model:         -11522.839
D(3133):                     23045.679   LR(20):                        374.429
                                         Prob > LR:                       0.000
R2:                              0.106   Adjusted R2:                     0.044
AIC:                             7.000   AIC*n:                       23491.679
BIC:                         -2389.598   BIC':                         -212.059
BIC used by Stata:           23216.167   AIC used by Stata:           23087.679

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3338
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(223,    19)     =      3.35
maximum lag: 1                                   Prob > F          =    0.0017
                                                 R-squared         =    0.1052
                                                 Root MSE          =    7.7672

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0892536   .0124406    -7.17   0.000     -.115292   -.0632152
L_tot_oil_~p |   1.996693   .5235948     3.81   0.001     .9007967     3.09259
D_tot_oil_~p |   .8941437   .6751222     1.32   0.201    -.5189033    2.307191
 L_D_TOI_INT |  -.7572774   .6825953    -1.11   0.281    -2.185966     .671411
L2_D_TOI_INT |   -.113216   .6576882    -0.17   0.865    -1.489773    1.263341
L3_D_TOI_INT |    1.11739   1.298709     0.86   0.400    -1.600838    3.835618
        year |   .0000815   .0004954     0.16   0.871    -.0009554    .0011184

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -22.37101   5.236703    -4.27   0.000    -33.33155   -11.41046
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11652.392   Log-Lik Full Model:        -11466.824
D(3114):                     22933.648   LR(19):                       371.135
                                         Prob > LR:                      0.000
R2:                              0.105   Adjusted R2:                    0.043
AIC:                             7.005   AIC*n:                      23381.648
BIC:                         -2330.629   BIC':                        -216.985
BIC used by Stata:           23104.024   AIC used by Stata:          22975.648

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3320
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(224,    19)     =      3.26
maximum lag: 1                                   Prob > F          =    0.0020
                                                 R-squared         =    0.1054
                                                 Root MSE          =    7.7870

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0894552   .0124323    -7.20   0.000    -.1154764   -.0634341
L_tot_oil_~p |   1.965935    .526205     3.74   0.001     .8645751    3.067295
D_tot_oil_~p |   1.104119   .7543565     1.46   0.160    -.4747676    2.683005
 L_D_TOI_INT |  -.6765013   .7090432    -0.95   0.352    -2.160546    .8075433
L2_D_TOI_INT |   .0058945   .6832875     0.01   0.993    -1.424243    1.436032
L3_D_TOI_INT |   1.250522   1.264503     0.99   0.335    -1.396114    3.897158
L4_D_TOI_INT |   .9090451   .8170656     1.11   0.280    -.8010929    2.619183

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -21.97675   5.323027    -4.13   0.001    -33.11797   -10.83553
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11597.778   Log-Lik Full Model:         -11412.802
D(3095):                     22825.604   LR(18):                        369.951
                                         Prob > LR:                       0.000
R2:                              0.105   Adjusted R2:                     0.043
AIC:                             7.011   AIC*n:                       23275.604
BIC:                         -2267.790   BIC':                         -224.012
BIC used by Stata:           22979.651   AIC used by Stata:           22863.604

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT
L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3302
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(225,    19)     =      3.55
maximum lag: 1                                   Prob > F          =    0.0011
                                                 R-squared         =    0.1060
                                                 Root MSE          =    7.8055

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0900256   .0124587    -7.23   0.000     -.116102   -.0639492
L_tot_oil_~p |   2.067033   .5306513     3.90   0.001     .9563675    3.177699
D_tot_oil_~p |   1.473431   1.000155     1.47   0.157    -.6199177    3.566779
 L_D_TOI_INT |  -.9827372   .7520223    -1.31   0.207    -2.556738    .5912636
L2_D_TOI_INT |  -.0865642   .6551094    -0.13   0.896    -1.457724    1.284595
L3_D_TOI_INT |   1.100159   1.296965     0.85   0.407     -1.61442    3.814738
L4_D_TOI_INT |    .809946   .8440107     0.96   0.349    -.9565888    2.576481
L5_D_TOI_INT |  -1.171581   .9165976    -1.28   0.217    -3.090042    .7468798

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -22.96051   5.401503    -4.25   0.000    -34.26599   -11.65504
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -11543.123   Log-Lik Full Model:        -11358.155
D(3076):                     22716.310   LR(19):                       369.935
                                         Prob > LR:                      0.000
R2:                              0.106   Adjusted R2:                    0.043
AIC:                             7.016   AIC*n:                      23168.310
BIC:                         -2206.314   BIC':                        -215.992
BIC used by Stata:           22870.253   AIC used by Stata:          22754.310

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 6, COLUMN 1 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(84 missing values
generated)


Results for H0: no cointegration
With 20 series and 1 covariate

--------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.445  |   -0.431  |   0.333   |      0.160     |
     Ga    |  -11.877  |    0.088  |   0.535   |      0.040     |
     Pt    |  -11.245  |   -2.056  |   0.020   |      0.080     |
     Pa    |  -11.729  |   -2.040  |   0.021   |      0.040     |
--------------------------------------------------------------+
```

TRYING AGAIN WITH ONE LAG OF TOTAL OIL INCOME

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(84 missing values
generated)


Results for H0: no cointegration
With 20 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.621   |   -1.403   |   0.080    |      0.040     |
     Ga    |  -13.267   |   -0.826   |   0.205    |      0.040     |
     Pt    |  -11.894   |   -2.798   |   0.003    |      0.000     |
     Pa    |  -12.842   |   -2.851   |   0.002    |      0.000     |
-----------------------------------------------------------------+
```

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3388
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(219,    19)     =      3.56
maximum lag: 1                                   Prob > F          =    0.0011
                                                 R-squared         =    0.1050
                                                 Root MSE          =    7.7175

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0887175   .0123306    -7.19   0.000    -.1145258   -.0629091
L_tot_oil_~p |    1.97593   .5130884     3.85   0.001     .9020235    3.049836
D_tot_oil_~p |   .9263935   .6300518     1.47   0.158    -.3923199    2.245107


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -22.27216   4.996601    -4.46   0.000    -32.73017   -11.81416
------------------------------------------------------------------------------
```

.

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(84 missing values
generated)


Results for H0: no cointegration
With 20 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |    Value    |  Z-value   |  P-value   | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.326  |   -1.511  |   0.065    |      0.040     |
     Ga    |  -15.767  |    1.693  |   0.955    |      0.320     |
     Pt    |  -14.385  |   -1.935  |   0.027    |      0.080     |
     Pa    |  -16.593  |   -0.452  |   0.326    |      0.200     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(84 missing values
generated)


Results for H0: no cointegration
With 20 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |    Value    |  Z-value   |  P-value   | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.138  |   -0.601  |   0.274    |      0.160     |
     Ga    |  -16.967  |    1.110  |   0.867    |      0.200     |
     Pt    |  -13.335  |   -0.880  |   0.190    |      0.080     |
     Pa    |  -16.119  |   -0.217  |   0.414    |      0.120     |
-----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1939
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(227,    19)     =     14.56
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1446
                                                 Root MSE          =    9.4486

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1090212   .0159698    -6.83   0.000    -.1424465   -.0755959
L_tot_oil_~p |   2.532402   .6950472     3.64   0.002     1.077652    3.987153
D_tot_oil_~p |   1.096662   .6189059     1.77   0.092    -.1987228    2.392047
L_LogPerCa~p |    -.20184   .7568767    -0.27   0.793    -1.786001    1.382321
L_CivilWar~p |   .9746479   1.026387     0.95   0.354    -1.173605    3.122901
L_REGION_D~E |  -.0443656   .0563494    -0.79   0.441    -.1623063    .0735751
L_WORLD_DE~E |   .4895089   .1760354     2.78   0.012     .1210625    .8579554
D_LogperCa~t |   .8446485   4.006234     0.21   0.835    -7.540496    9.229793
D_Region_D~e |   .8087995   .4824147     1.68   0.110     -.200906    1.818505
D_World_De~e |   .8544345   .2835275     3.01   0.007     .2610046    1.447864


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -23.22853    5.34913    -4.34   0.000    -34.42439   -12.03267
------------------------------------------------------------------------------
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2132
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(207,    44)     =   2897.97
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1510
                                                 Root MSE          =    9.0782

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.135289   .0206158    -6.56   0.000    -.1768374   -.0937407
L_tot_oil_~p |  -.1631085   .1351279    -1.21   0.234     -.435441    .1092239
D_tot_oil_~p |  -.3599561   .2852698    -1.26   0.214    -.9348795    .2149674

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    1.20563   1.017184     1.19   0.242    -.8443691    3.255629
------------------------------------------------------------------------------.
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -7794.266   Log-Lik Full Model:          -7619.793
D(1924):                     15239.585   LR(44):                        348.947
                                         Prob > LR:                       0.000
R2:                              0.151   Adjusted R2:                     0.061
AIC:                             7.343   AIC*n:                       15655.585
BIC:                           492.480   BIC':                          -11.695
BIC used by Stata:           15584.502   AIC used by Stata:           15329.585

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2091
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(208,    44)     = 778949.12
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1510
                                                 Root MSE          =    9.0686

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1362152   .0206686    -6.59   0.000    -.1778699   -.0945604
L_tot_oil_~p |  -.2395077   .1239303    -1.93   0.060    -.4892728    .0102574
D_tot_oil_~p |  -.4655449   .3017284    -1.54   0.130    -1.073638    .1425488
 L_D_TOI_INT |   -.086605   .2526352    -0.34   0.733    -.5957578    .4225478


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.758304   .8572088     2.05   0.046     .0307132    3.485895
------------------------------------------------------------------------------


. quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -7640.022   Log-Lik Full Model:          -7468.851
D(1882):                     14937.703   LR(44):                        342.342
                                         Prob > LR:                       0.000
R2:                              0.151   Adjusted R2:                     0.059
AIC:                             7.344   AIC*n:                       15355.703
BIC:                           549.064   BIC':                           -5.945
BIC used by Stata:           15281.746   AIC used by Stata:           15027.703

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2050
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(209,    44)     =  50113.81
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1560
                                                 Root MSE          =    9.1299

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1427254   .0216583    -6.59   0.000    -.1863749    -.099076
L_tot_oil_~p |  -.2856394   .1325117    -2.16   0.037    -.5526993   -.0185796
D_tot_oil_~p |  -.4801553   .2992837    -1.60   0.116    -1.083322    .1230115
 L_D_TOI_INT |  -.0574781   .2606071    -0.22   0.826    -.5826973     .467741
L2_D_TOI_INT |   .1287907    .213866     0.60   0.550    -.3022279    .5598093
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   2.001321   .8431589     2.37   0.022     .3020461    3.700596
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -7507.812   Log-Lik Full Model:          -7333.952
D(1840):                     14667.904   LR(44):                        347.719
                                         Prob > LR:                       0.000
R2:                              0.156   Adjusted R2:                     0.062
AIC:                             7.360   AIC*n:                       15087.904
BIC:                           636.809   BIC':                          -12.193
BIC used by Stata:           15018.681   AIC used by Stata:           14759.904

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2009
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(210,    44)     =  28332.63
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1562
                                                 Root MSE          =    9.1286

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1448424   .0234666    -6.17   0.000    -.1921363   -.0975486
L_tot_oil_~p |  -.3646682   .1481389    -2.46   0.018    -.6632226   -.0661138
D_tot_oil_~p |  -.4946375   .3143206    -1.57   0.123    -1.128109     .138834
 L_D_TOI_INT |   .0130084   .2638312     0.05   0.961    -.5187084    .5447252
L2_D_TOI_INT |   .1892741   .2285568     0.83   0.412    -.2713518       .6499
L3_D_TOI_INT |   .1901455   .2573817     0.74   0.464    -.3285733    .7088643


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   2.517689   .9104782     2.77   0.008     .6827412    4.352638
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -7355.265   Log-Lik Full Model:          -7184.704
D(1798):                     14369.409   LR(44):                        341.121
                                         Prob > LR:                       0.000
R2:                              0.156   Adjusted R2:                     0.060
AIC:                             7.363   AIC*n:                       14791.409
BIC:                           694.914   BIC':                           -6.484
BIC used by Stata:           14719.257   AIC used by Stata:           14461.409

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1965
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(211,    44)     =  49119.20
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1560
                                                 Root MSE          =    8.9431

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1384487   .0217835    -6.36   0.000    -.1823505   -.0945469
L_tot_oil_~p |  -.3065306   .1670703    -1.83   0.073    -.6432386    .0301775
D_tot_oil_~p |  -.4551563   .3146835    -1.45   0.155    -1.089359    .1790466
 L_D_TOI_INT |  -.0006374   .2551201    -0.00   0.998    -.5147982    .5135233
L2_D_TOI_INT |   .1572102   .2360049     0.67   0.509    -.3184264    .6328467
L3_D_TOI_INT |   .1629027   .2889043     0.56   0.576    -.4193457    .7451511
L4_D_TOI_INT |  -.1147457   .4222265    -0.27   0.787    -.9656873    .7361959


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   2.214037   1.139564     1.94   0.058    -.0826036    4.510678
------------------------------------------------------------------------------



quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -7151.160   Log-Lik Full Model:          -6984.498
D(1753):                     13968.996   LR(44):                        333.324
                                         Prob > LR:                       0.000
R2:                              0.156   Adjusted R2:                     0.058
AIC:                             7.325   AIC*n:                       14392.996
BIC:                           675.563   BIC':                            0.339
BIC used by Stata:           14317.826   AIC used by Stata:           14060.996

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT
L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1921
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(212,    44)     =   1523.33
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1590
                                                 Root MSE          =    8.8986

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1408382   .0218953    -6.43   0.000    -.1849654   -.0967111
L_tot_oil_~p |  -.2033081   .1858644    -1.09   0.280    -.5778933     .171277
D_tot_oil_~p |  -.3268357    .368015    -0.89   0.379    -1.068521    .4148497
 L_D_TOI_INT |  -.0368563   .2393288    -0.15   0.878    -.5191917    .4454792
L2_D_TOI_INT |   .0914962    .253646     0.36   0.720    -.4196937    .6026861
L3_D_TOI_INT |   .0545958   .2425749     0.23   0.823    -.4342818    .5434734
L4_D_TOI_INT |  -.1903866   .4027137    -0.47   0.639    -1.002003    .6212296
L5_D_TOI_INT |  -.5502692   .3652642    -1.51   0.139    -1.286411    .1858725
        year |    .006284   .0017362     3.62   0.001      .002785    .0097831


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.443558   1.295093     1.11   0.271     -1.16653    4.053645
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -6982.280   Log-Lik Full Model:         -6815.920
D(1708):                     13631.841   LR(44):                       332.720
                                         Prob > LR:                      0.000
R2:                              0.159   Adjusted R2:                    0.059
AIC:                             7.318   AIC*n:                      14057.841
BIC:                           718.334   BIC':                          -0.053
BIC used by Stata:           13979.629   AIC used by Stata:          13723.841

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 6, COLUMN 2 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 45 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |    Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-------------+-----------+-----------+----------------|
     Gt    |   -2.261  |    0.872  |   0.808   |      0.320     |
     Ga    |   -6.689  |    5.251  |   1.000   |      0.760     |
     Pt    |  -15.373  |   -1.375  |   0.085   |      0.360     |
     Pa    |   -9.739  |   -0.882  |   0.189   |      0.280     |
-----------------------------------------------------------------+

.
```

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 45 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.346  |    0.172  |   0.568   |      0.200     |
     Ga    |   -7.613  |    4.339  |   1.000   |      0.600     |
     Pt    |  -16.439  |   -2.594  |   0.005   |      0.240     |
     Pa    |  -11.165  |   -2.442  |   0.007   |      0.040     |
-----------------------------------------------------------------+
```

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2132
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(207,    44)     =   2897.97
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1510
                                                 Root MSE          =    9.0782

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.135289   .0206158    -6.56   0.000    -.1768374   -.0937407
L_tot_oil_~p |  -.1631085   .1351279    -1.21   0.234     -.435441    .1092239
D_tot_oil_~p |  -.3599561   .2852698    -1.26   0.214    -.9348795    .2149674

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    1.20563   1.017184     1.19   0.242    -.8443691    3.255629
------------------------------------------------------------------------------
```

.

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      531 |         14
      565 |         17
----------------------
```

Must omit Eritrea and Namibia

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 43 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-3.342	-2.335	0.010	0.000
Ga	-10.224	6.430	1.000	0.000
Pt	-17.107	1.165	0.878	0.000
Pa	-8.893	4.934	1.000	0.120

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags (1) leads(1) lrwindow(8)
bootstrap(25)
```

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 43 series and 5 covariates

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.876	0.987	0.838	0.000
Ga	-7.563	8.325	1.000	0.320
Pt	-13.556	4.731	1.000	0.280
Pa	-5.556	7.360	1.000	0.800

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1893
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(214,    44)     =  5.96e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1514
                                                 Root MSE          =    9.3237

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1439549   .0217344    -6.62   0.000    -.1877578    -.100152
L_tot_oil_~p |   .0221355   .1624974     0.14   0.892    -.3053564    .3496274
D_tot_oil_~p |   -.374047   .3251851    -1.15   0.256    -1.029415    .2813206
L_LogPerCa~p |  -1.210181   .6442474    -1.88   0.067    -2.508576    .0882146
L_CivilWar~p |  -.2814054   .6752347    -0.42   0.679    -1.642251    1.079441
L_REGION_D~E |  -.0220181    .003924    -5.61   0.000    -.0299265   -.0141097
L_WORLD_DE~E |   .4588801     .06535     7.02   0.000     .3271758    .5905844
D_LogperCa~t |   5.161245   3.901407     1.32   0.193    -2.701525    13.02402
D_Region_D~e |  -.0067727   .0027473    -2.47   0.018    -.0123095   -.0012358
D_World_De~e |   .2195771    .033288     6.60   0.000     .1524896    .2866646


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1537669   1.130315    -0.14   0.892    -2.431768    2.124234
------------------------------------------------------------------------------
```

RERUNNING ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)
i.year            _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1864
Method: Pooled OLS                               Number of groups  =        43
Group variable (i): hmccode                      F(212,    42)     =  1.07e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1520
                                                 Root MSE          =    9.3904

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1438212   .0217796    -6.60   0.000    -.1877742   -.0998682
L_tot_oil_~p |   .0233664   .1632056     0.14   0.887    -.3059959    .3527288
D_tot_oil_~p |  -.3755092   .3283721    -1.14   0.259    -1.038191    .2871725
L_LogPerCa~p |   -1.23569   .6436925    -1.92   0.062    -2.534714    .0633339
L_CivilWar~p |  -.2801953    .676095    -0.41   0.681     -1.64461     1.08422
L_REGION_D~E |   -.021996   .0039834    -5.52   0.000    -.0300348   -.0139573
L_WORLD_DE~E |   .4599115    .066605     6.91   0.000     .3254972    .5943257
D_LogperCa~t |   5.281439   3.939375     1.34   0.187     -2.66854    13.23142
D_Region_D~e |  -.0068062   .0027624    -2.46   0.018     -.012381   -.0012313
D_World_De~e |   .2200061   .0338264     6.50   0.000     .1517417    .2882706


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.1624687   1.136616    -0.14   0.887    -2.456254    2.131316
------------------------------------------------------------------------------

.
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1633
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =   1956.28
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1233
                                                 Root MSE          =    6.3264

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0702132    .015999    -4.39   0.000    -.1039681   -.0364582
L_tot_oil_~p |   .0503327   .0265589     1.90   0.075    -.0057017     .106367
D_tot_oil_~p |  -.0545698   .0402796    -1.35   0.193    -.1395523    .0304128

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7168552   .3173388    -2.26   0.037    -1.386381   -.0473289
------------------------------------------------------------------------------




. quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5315.384   Log-Lik Full Model:          -5207.935
D(1405):                     10415.871   LR(17):                        214.897
                                         Prob > LR:                       0.000
R2:                              0.123   Adjusted R2:                    -0.017
AIC:                             6.658   AIC*n:                       10871.871
BIC:                            21.436   BIC':                          -89.128
BIC used by Stata:           10549.038   AIC used by Stata:           10451.871

(Indices saved in matrix fs_mod1)

.
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1622
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(228,    17)     =   2613.94
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1248
                                                 Root MSE          =    6.3458

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0709661   .0161541    -4.39   0.000    -.1050482   -.0368839
L_tot_oil_~p |    .038288   .0221109     1.73   0.101     -.008362     .084938
D_tot_oil_~p |  -.0542676   .0378457    -1.43   0.170    -.1341149    .0255798
 L_D_TOI_INT |   .0708325   .0323234     2.19   0.043      .002636     .139029

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5395254   .2702619    -2.00   0.062    -1.109728    .0306772
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5285.059   Log-Lik Full Model:         -5176.947
D(1393):                     10353.894   LR(17):                       216.223
                                         Prob > LR:                      0.000
R2:                              0.125   Adjusted R2:                   -0.016
AIC:                             6.666   AIC*n:                      10811.894
BIC:                            57.653   BIC':                         -90.569
BIC used by Stata:           10486.940   AIC used by Stata:          10389.894

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1611
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(229,    17)     =   2472.08
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1255
                                                 Root MSE          =    6.3685

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0710835   .0162682    -4.37   0.000    -.1054064   -.0367606
L_tot_oil_~p |   .0376509   .0216131     1.74   0.100    -.0079487    .0832505
D_tot_oil_~p |  -.0534926   .0372543    -1.44   0.169    -.1320924    .0251072
 L_D_TOI_INT |   .0720884   .0310173     2.32   0.033     .0066476    .1375293
L2_D_TOI_INT |   .0093766   .0280392     0.33   0.742     -.049781    .0685342
```

```
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5296717   .2625402    -2.02   0.060    -1.083583    .0242396
------------------------------------------------------------------------------

.
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5254.697   Log-Lik Full Model:          -5146.708
D(1381):                     10293.416   LR(18):                        215.977
                                         Prob > LR:                       0.000
R2:                              0.125   Adjusted R2:                    -0.017
AIC:                             6.675   AIC*n:                       10753.416
BIC:                            95.269   BIC':                          -83.054
BIC used by Stata:           10426.339   AIC used by Stata:           10329.416

(Indices saved in matrix fs_mod1)
```

```
3 LAGS OF D.TOTAL OIL INCOME

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1600
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(230,    17)     =   2264.66
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1277
                                                 Root MSE          =    6.3858

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0714831   .0164253    -4.35   0.000    -.1061374   -.0368289
L_tot_oil_~p |   .0326431   .0239805     1.36   0.191    -.0179514    .0832376
D_tot_oil_~p |  -.0539905   .0357471    -1.51   0.149    -.1294103    .0214292
 L_D_TOI_INT |   .0780713   .0289887     2.69   0.015     .0169104    .1392322
L2_D_TOI_INT |   .0147309   .0311243     0.47   0.642    -.0509356    .0803974
L3_D_TOI_INT |   .0307955   .0282751     1.09   0.291    -.0288599    .0904508


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4566549   .2937803    -1.55   0.139    -1.076477    .1631674
------------------------------------------------------------------------------

.




quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5224.297   Log-Lik Full Model:         -5114.991
D(1369):                     10229.981   LR(16):                       218.612
                                         Prob > LR:                      0.000
R2:                              0.128   Adjusted R2:                   -0.015
AIC:                             6.682   AIC*n:                      10691.981
BIC:                           129.830   BIC':                        -100.568
BIC used by Stata:           10355.403   AIC used by Stata:          10263.981

(Indices saved in matrix fs_mod1)

.
```

```
4 LAGS OF D.TOTAL OIL INCOME

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1588
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(231,    17)     =   3025.64
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1293
                                                 Root MSE          =    6.4078

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.072698   .0168122    -4.32   0.000    -.1081687   -.0372274
L_tot_oil_~p |   .0393692   .0216335     1.82   0.086    -.0062734    .0850118
D_tot_oil_~p |  -.0582591   .0397828    -1.46   0.161    -.1421934    .0256753
 L_D_TOI_INT |   .0717463   .0249553     2.87   0.011     .0190953    .1243974
L2_D_TOI_INT |   .0068156   .0253369     0.27   0.791    -.0466405    .0602717
L3_D_TOI_INT |   .0240025   .0224551     1.07   0.300    -.0233737    .0713787
L4_D_TOI_INT |  -.0350451   .0240002    -1.46   0.162     -.085681    .0155908


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5415439   .2494617    -2.17   0.044    -1.067862   -.0152257
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5191.090   Log-Lik Full Model:          -5081.111
D(1356):                     10162.222   LR(16):                        219.958
                                         Prob > LR:                       0.000
R2:                              0.129   Adjusted R2:                    -0.014
AIC:                             6.692   AIC*n:                       10626.222
BIC:                           168.190   BIC':                         -102.034
BIC used by Stata:           10287.516   AIC used by Stata:           10196.222

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1576
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(232,    17)     =   4039.58
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1278
                                                 Root MSE          =    6.2119

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0648972   .0154763    -4.19   0.001    -.0975494   -.0322451
L_tot_oil_~p |   .0395624   .0249385     1.59   0.131    -.0130531     .092178
D_tot_oil_~p |  -.0572097   .0463085    -1.24   0.233    -.1549121    .0404927
 L_D_TOI_INT |   .0728125   .0268956     2.71   0.015     .0160678    .1295572
L2_D_TOI_INT |   .0070276   .0266447     0.26   0.795    -.0491877    .0632429
L3_D_TOI_INT |   .0241557   .0234044     1.03   0.316    -.0252234    .0735348
L4_D_TOI_INT |    -.03505   .0234799    -1.49   0.154    -.0845882    .0144882
L5_D_TOI_INT |  -.0002741   .0275561    -0.01   0.992    -.0584125    .0578643


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.6096169   .3227291    -1.89   0.076    -1.290516     .071282
------------------------------------------------------------------------------



quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -5100.507   Log-Lik Full Model:         -4992.781
D(1343):                      9985.562   LR(17):                       215.452
                                         Prob > LR:                      0.000
R2:                              0.128   Adjusted R2:                   -0.018
AIC:                             6.632   AIC*n:                      10451.562
BIC:                            97.529   BIC':                         -90.287
BIC used by Stata:           10118.090   AIC used by Stata:          10021.562

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 6, COLUMN 3 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.457   |   -0.475   |   0.318    |     0.160      |
     Ga    |  -12.893   |   -0.550   |   0.291    |     0.080      |
     Pt    |  -11.625   |   -3.045   |   0.001    |     0.040      |
     Pa    |  -15.131   |   -4.289   |   0.000    |     0.040      |
-----------------------------------------------------------------+
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 1 covariate
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.560	-1.010	0.156	0.160
Ga	-13.809	-1.122	0.131	0.080
Pt	-11.300	-2.673	0.004	0.040
Pa	-15.542	-4.573	0.000	0.080

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1633
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(227,    17)     =   1956.28
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1233
                                                 Root MSE          =    6.3264

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0702132    .015999    -4.39   0.000    -.1039681   -.0364582
L_tot_oil_~p |   .0503327   .0265589     1.90   0.075    -.0057017     .106367
D_tot_oil_~p |  -.0545698   .0402796    -1.35   0.193    -.1395523    .0304128


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7168552   .3173388    -2.26   0.037    -1.386381   -.0473289
------------------------------------------------------------------------------
```

.

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.825	0.872	0.808	0.400
Ga	-10.393	4.082	1.000	0.760
Pt	-9.341	2.488	0.994	0.400
Pa	-9.362	2.972	0.999	0.560

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 18 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.813	0.929	0.823	0.360
Ga	-9.603	4.446	1.000	0.680
Pt	-8.623	3.209	0.999	0.240
Pa	-8.733	3.267	1.000	0.400

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       961
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(234,    17)     =   2622.01
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1860
                                                 Root MSE          =    6.9419

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1358667    .029411    -4.62   0.000    -.1979185    -.073815
L_tot_oil_~p |   .0376686   .0287458     1.31   0.207    -.0229797    .0983168
D_tot_oil_~p |  -.0805642   .0396145    -2.03   0.058    -.1641435     .003015
L_LogPerCa~p |   1.545835   .4741313     3.26   0.005     .5455052    2.546164
L_CivilWar~p |   .7201443   1.273801     0.57   0.579    -1.967341    3.407629
L_REGION_D~E |   .0312919   .0806945     0.39   0.703    -.1389587    .2015424
L_WORLD_DE~E |   .4058042   .1185979     3.42   0.003     .1555845     .656024
D_LogperCa~t |   2.436412   3.540659     0.69   0.501    -5.033726     9.90655
D_Region_D~e |   3.377255   .1314212    25.70   0.000      3.09998    3.654529
D_World_De~e |   .2402669   .0691181     3.48   0.003     .0944404    .3860935
        year |  -.0088034    .001956    -4.50   0.000    -.0129303   -.0046766

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2772465   .2013138    -1.38   0.186    -.7019814    .1474885
------------------------------------------------------------------------------
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1391
Method: Pooled OLS                               Number of groups  =        31
Group variable (i): hmccode                      F(240,    30)     =     38.39
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3422
                                                 Root MSE          =    7.2187

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1702327   .0282236    -6.03   0.000    -.2278729   -.1125924
L_tot_oil_~p |   .6213849   1.161222     0.54   0.597    -1.750146    2.992916
D_tot_oil_~p |  -.3242564   2.044165    -0.16   0.875    -4.498998    3.850485

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -3.65021    6.81804    -0.54   0.596     -17.5745    10.27409
------------------------------------------------------------------------------



quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4883.475   Log-Lik Full Model:          -4592.179
D(1150):                      9184.358   LR(26):                        582.591
                                         Prob > LR:                       0.000
R2:                              0.342   Adjusted R2:                     0.206
AIC:                             6.949   AIC*n:                        9666.358
BIC:                           860.913   BIC':                         -394.409
BIC used by Stata:            9379.778   AIC used by Stata:            9238.358

(Indices saved in matrix fs_mod1)

.
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1362
Method: Pooled OLS                               Number of groups  =        31
Group variable (i): hmccode                      F(241,    30)     =    177.75
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3505
                                                 Root MSE          =    7.2430

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1760045   .0290006    -6.07   0.000    -.2352315   -.1167775
L_tot_oil_~p |   .1376752    1.23686     0.11   0.912     -2.38833     2.66368
D_tot_oil_~p |  -.9792273   2.260256    -0.43   0.668    -5.595286    3.636832
 L_D_TOI_INT |   3.230573   3.104854     1.04   0.306    -3.110385    9.571531


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7822253   7.029553    -0.11   0.912    -15.13849    13.57404
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4791.835   Log-Lik Full Model:         -4497.999
D(1120):                      8995.999   LR(27):                       587.672
                                         Prob > LR:                      0.000
R2:                              0.350   Adjusted R2:                    0.213
AIC:                             6.960   AIC*n:                       9479.999
BIC:                           913.284   BIC':                        -392.821
BIC used by Stata:            9190.850   AIC used by Stata:           9049.999

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1332
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(242,    29)     =     20.75
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3590
                                                 Root MSE          =    7.2823

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1872841   .0291909    -6.42   0.000    -.2469861   -.1275821
L_tot_oil_~p |   .5900837   1.201368     0.49   0.627    -1.866989    3.047157
D_tot_oil_~p |  -.6908513   2.328208    -0.30   0.769    -5.452571    4.070869
 L_D_TOI_INT |   3.338603   3.044431     1.10   0.282    -2.887958    9.565164
L2_D_TOI_INT |  -3.307259   3.172999    -1.04   0.306     -9.79677    3.182252

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -3.150742   6.469402    -0.49   0.630    -16.38215    10.08067
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4699.736   Log-Lik Full Model:          -4403.544
D(1089):                      8807.089   LR(26):                        592.383
                                         Prob > LR:                       0.000
R2:                              0.359   Adjusted R2:                     0.220
AIC:                             6.977   AIC*n:                        9293.089
BIC:                           972.347   BIC':                         -405.327
BIC used by Stata:            9001.339   AIC used by Stata:            8861.089

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1302
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(243,    29)     =     13.79
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3577
                                                 Root MSE          =    7.3109

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1894316   .0306023    -6.19   0.000    -.2520204   -.1268429
L_tot_oil_~p |   .6633111   1.223446     0.54   0.592    -1.838918     3.16554
D_tot_oil_~p |  -1.057682   2.434806    -0.43   0.667     -6.03742    3.922057
 L_D_TOI_INT |   3.127231   3.084079     1.01   0.319    -3.180418     9.43488
L2_D_TOI_INT |  -3.499461   3.222502    -1.09   0.286    -10.09022    3.091296
L3_D_TOI_INT |   .3628613   1.907471     0.19   0.850    -3.538356    4.264078

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -3.501586   6.523699    -0.54   0.596    -16.84405    9.840876
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4594.404   Log-Lik Full Model:          -4306.198
D(1058):                      8612.396   LR(25):                        576.411
                                         Prob > LR:                       0.000
R2:                              0.358   Adjusted R2:                     0.215
AIC:                             6.990   AIC*n:                        9100.396
BIC:                          1024.783   BIC':                         -397.119
BIC used by Stata:            8798.859   AIC used by Stata:            8664.396

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1272
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(244,    29)     =      6.82
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3613
                                                 Root MSE          =    7.3247

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1930213   .0319989    -6.03   0.000    -.2584664   -.1275762
L_tot_oil_~p |   .4136658   1.420361     0.29   0.773    -2.491298    3.318629
D_tot_oil_~p |     -.6181   2.299596    -0.27   0.790    -5.321303    4.085103
 L_D_TOI_INT |   3.895156   3.160981     1.23   0.228    -2.569775    10.36009
L2_D_TOI_INT |  -2.379657   3.175945    -0.75   0.460    -8.875195     4.11588
L3_D_TOI_INT |   1.460361    1.87777     0.78   0.443    -2.380111    5.300832
L4_D_TOI_INT |   3.976553    4.26221     0.93   0.359    -4.740645    12.69375


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -2.14311    7.39709    -0.29   0.774    -17.27186    12.98564
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4491.126   Log-Lik Full Model:          -4206.007
D(1027):                      8412.014   LR(26):                        570.238
                                         Prob > LR:                       0.000
R2:                              0.361   Adjusted R2:                     0.215
AIC:                             6.998   AIC*n:                        8902.014
BIC:                          1070.663   BIC':                         -384.381
BIC used by Stata:            8605.019   AIC used by Stata:            8466.014

(Indices saved in matrix fs_mod1)

.
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1242
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(245,    29)     =     10.69
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3783
                                                 Root MSE          =    7.1859

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.2018947   .0339798    -5.94   0.000    -.2713912   -.1323982
L_tot_oil_~p |   -.332634   1.592321    -0.21   0.836    -3.589295    2.924027
D_tot_oil_~p |  -1.757791   2.491168    -0.71   0.486    -6.852801    3.337218
 L_D_TOI_INT |   5.103863   3.474311     1.47   0.153    -2.001902    12.20963
L2_D_TOI_INT |  -1.290319   3.437488    -0.38   0.710    -8.320772    5.740134
L3_D_TOI_INT |   3.117282   2.177794     1.43   0.163    -1.336806     7.57137
L4_D_TOI_INT |   4.932589   4.348403     1.13   0.266    -3.960893    13.82607
L5_D_TOI_INT |   8.528236   4.918657     1.73   0.094    -1.531546    18.58802

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.647562   7.865946     0.21   0.836     -14.4401    17.73523
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4374.770   Log-Lik Full Model:          -4079.582
D(996):                       8159.164   LR(25):                        590.376
                                         Prob > LR:                       0.000
R2:                              0.378   Adjusted R2:                     0.232
AIC:                             6.966   AIC*n:                        8651.164
BIC:                          1063.184   BIC':                         -412.264
BIC used by Stata:            8344.401   AIC used by Stata:            8211.164

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 6, COLUMN 4 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      346 |          3
----------------------

Bosnia and Herzegovenia is deleted


. xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 30 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -1.582  |    5.286  |   1.000   |      1.000     |
     Ga    |   -5.251  |    5.446  |   1.000   |      1.000     |
     Pt    |   -8.294  |    3.746  |   1.000   |      0.880     |
     Pa    |   -6.885  |    1.830  |   0.966   |      0.840     |
-----------------------------------------------------------------+
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 30 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -1.836  |    3.577  |   1.000   |      0.960     |
     Ga    |   -6.452  |    4.478  |   1.000   |      0.960     |
     Pt    |   -9.700  |    2.138  |   0.984   |      0.840     |
     Pa    |   -8.098  |    0.746  |   0.772   |      0.800     |
-----------------------------------------------------------------+
```

FULL DATASET, NO CONTROLS

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1391
Method: Pooled OLS                               Number of groups  =        31
Group variable (i): hmccode                      F(240,    30)     =     38.39
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3422
                                                 Root MSE          =    7.2187

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1702327   .0282236    -6.03   0.000    -.2278729   -.1125924
L_tot_oil_~p |   .6213849   1.161222     0.54   0.597    -1.750146    2.992916
D_tot_oil_~p |  -.3242564   2.044165    -0.16   0.875    -4.498998    3.850485

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -3.65021    6.81804    -0.54   0.596    -17.5745    10.27409
------------------------------------------------------------------------------



.
```

Truncated dataset rerun the model without controls

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1389
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(239,    29)     =     39.17
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3422
                                                 Root MSE          =    7.2218

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.170228   .0282248    -6.03   0.000    -.2279542   -.1125018
L_tot_oil_~p |   .6222172   1.160979     0.54   0.596    -1.752252    2.996687
D_tot_oil_~p |  -.3278444   2.043805    -0.16   0.874    -4.507895    3.852206


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -3.6552   6.816935    -0.54   0.596    -17.5974      10.287
------------------------------------------------------------------------------

.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      316 |         14
      317 |         14
      343 |         16
      344 |         15
      347 |         15
      349 |         15
      359 |         16
      366 |         16
      367 |         16
      368 |         16
      369 |         15
      370 |         15
      371 |         16
      372 |         15
      373 |         15
      701 |         15
      702 |         15
      703 |         15
      704 |         15
      705 |         15
----------------------

Czech Republic, Slovakia, Macedonia, Croatia, Serbia RB, Slovenia, Moldova, Estonia,
Latvia, Lithuania, Ukraine, Belarus, Armenia, Azerbaijan, Turkmenistan, Tajikistan,
Uzbekistan, Kazakhstan, Georgia, Kyrgyzstan, Bosnia & Herzegovina are excluded because
their panels do not have sufficient observations.


Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests.........

Results for H0: no cointegration
With 9 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.301  |   -0.934  |   0.175   |      0.120     |
     Ga    |  -18.066  |    0.387  |   0.651   |      0.000     |
     Pt    |   -7.590  |    0.770  |   0.779   |      0.560     |
     Pa    |  -13.674  |    0.668  |   0.748   |      0.240     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests.........

Results for H0: no cointegration
With 9 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.230  |  -0.703  |   0.241   |      0.080     |
     Ga    |  -16.944  |   0.752  |   0.774   |      0.080     |
     Pt    |   -5.974  |   2.393  |   0.992   |      0.880     |
     Pa    |  -12.067  |   1.202  |   0.885   |      0.320     |
----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       938
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(247,    29)     =  39509.64
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3793
                                                 Root MSE          =    7.0680

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1868838   .0373882    -5.00   0.000    -.2633513   -.1104164
L_tot_oil_~p |   .1523067   1.142456     0.13   0.895    -2.184278    2.488892
D_tot_oil_~p |  -1.637071   2.239872    -0.73   0.471    -6.218124    2.943983
L_LogPerCa~p |   1.631178   2.177287     0.75   0.460    -2.821873    6.084229
L_CivilWar~p |  -.0333248   1.283486    -0.03   0.979    -2.658348    2.591698
L_REGION_D~E |   1.564309   .0755234    20.71   0.000     1.409846    1.718772
L_WORLD_DE~E |  -2.809116   .1314606   -21.37   0.000    -3.077983   -2.540249
D_LogperCa~t |    7.94094   4.034064     1.97   0.059    -.3096472    16.19153
D_Region_D~e |    1.56719   .0493776    31.74   0.000     1.466201    1.668178
D_World_De~e |  -1.785025   .0765639   -23.31   0.000    -1.941615   -1.628434

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8149807   6.096138    -0.13   0.895    -13.28298    11.65302
------------------------------------------------------------------------------
```

RERUNNING THE TRUNCATED MODEL ON THE REDUCED DATASET NEEDED TO RUN WESTERLUND COINT TEST WITH CONTROLS

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       652
Method: Pooled OLS                               Number of groups  =         9
Group variable (i): hmccode                      F(226,     8)     =    680.81
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.4389
                                                 Root MSE          =    6.9942

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1941265   .0479737    -4.05   0.004     -.304754   -.0834989
L_tot_oil_~p |   1.794288    1.25605     1.43   0.191    -1.102169    4.690745
D_tot_oil_~p |   .8685986   2.779968     0.31   0.763    -5.542018    7.279216
L_LogPerCa~p |   3.583769   2.843688     1.26   0.243    -2.973787    10.14132
L_CivilWar~p |   -.484075   1.594374    -0.30   0.769    -4.160708    3.192558
L_REGION_D~E |    1.60598   .0776062    20.69   0.000      1.42702    1.784941
L_WORLD_DE~E |  -2.770086   .1641748   -16.87   0.000    -3.148673   -2.391498
D_LogperCa~t |   11.09178   6.679293     1.66   0.135    -4.310692    26.49426
D_Region_D~e |   1.551524   .0754706    20.56   0.000     1.377489     1.72556
D_World_De~e |  -1.741211   .0872102   -19.97   0.000    -1.942318   -1.540104


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -9.242881   6.107411    -1.51   0.169     -23.3266    4.840833
------------------------------------------------------------------------------
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       653
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(219,     9)     =     26.54
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1573
                                                 Root MSE          =    9.3755

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0812575   .0240712    -3.38   0.008    -.1357103   -.0268048
L_tot_oil_~p |   .6952395   3.486652     0.20   0.846    -7.192116    8.582595
D_tot_oil_~p |   .0530522   3.347712     0.02   0.988    -7.519998    7.626102

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |     -8.556   42.92816    -0.20   0.846    -105.6663    88.55425
------------------------------------------------------------------------------

.
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2311.298   Log-Lik Full Model:         -2255.412
D(433):                       4510.824   LR(9):                        111.773
                                         Prob > LR:                      0.000
R2:                              0.157   Adjusted R2:                   -0.263
AIC:                             7.582   AIC*n:                       4950.824
BIC:                          1704.301   BIC':                         -53.438
BIC used by Stata:            4569.158   AIC used by Stata:           4528.824

(Indices saved in matrix fs_mod1)
.
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       645
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(220,     9)     =     97.66
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1639
                                                 Root MSE          =    9.3921

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0859295   .0244904    -3.51   0.007    -.1413307   -.0305283
L_tot_oil_~p |  -5.206211   5.520312    -0.94   0.370    -17.69402    7.281603
D_tot_oil_~p |  -4.849386   6.477301    -0.75   0.473    -19.50206    9.803285
 L_D_TOI_INT |   14.84752   6.807889     2.18   0.057    -.5529948    30.24804


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   60.58698   63.90751     0.95   0.368    -83.98184    205.1558
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2284.644   Log-Lik Full Model:          -2226.911
D(424):                       4453.823   LR(9):                         115.466
                                         Prob > LR:                       0.000
R2:                              0.164   Adjusted R2:                    -0.261
AIC:                             7.590   AIC*n:                        4895.823
BIC:                          1710.861   BIC':                          -57.243
BIC used by Stata:            4518.515   AIC used by Stata:            4473.823

(Indices saved in matrix fs_mod1).
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       637
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(221,      9)    =     89.44
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1728
                                                 Root MSE          =    9.3966

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0907329   .0246489    -3.68   0.005    -.1464925   -.0349733
L_tot_oil_~p |  -6.894291   6.644806    -1.04   0.327    -21.92589    8.137305
D_tot_oil_~p |    2.21516   5.868198     0.38   0.715    -11.05963    15.48995
 L_D_TOI_INT |   14.31354   6.525919     2.19   0.056    -.4491118    29.07619
L2_D_TOI_INT |   15.87276   7.484958     2.12   0.063    -1.059387    32.80491

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   75.98445   71.41147     1.06   0.315    -85.55951    237.5284
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2257.981   Log-Lik Full Model:          -2197.545
D(415):                       4395.090   LR(10):                        120.873
                                         Prob > LR:                       0.000
R2:                              0.173   Adjusted R2:                    -0.256
AIC:                             7.597   AIC*n:                        4839.090
BIC:                          1715.530   BIC':                          -56.305
BIC used by Stata:            4466.114   AIC used by Stata:            4417.090

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       629
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(222,     9)     =     39.60
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1811
                                                 Root MSE          =    9.4297

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0961184   .0254062    -3.78   0.004    -.1535911   -.0386457
L_tot_oil_~p |  -7.225335   7.207685    -1.00   0.342    -23.53025    9.079581
D_tot_oil_~p |   6.175881    6.50594     0.95   0.367    -8.541579    20.89334
 L_D_TOI_INT |   13.16116   6.584253     2.00   0.077    -1.733457    28.05578
L2_D_TOI_INT |   11.92002   7.228974     1.65   0.134    -4.433053     28.2731
L3_D_TOI_INT |   2.603461   4.866844     0.53   0.606    -8.406105    13.61303

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    75.1712   72.72086     1.03   0.328    -89.33481    239.6772
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2232.884   Log-Lik Full Model:          -2170.068
D(406):                       4340.136   LR(9):                         125.632
                                         Prob > LR:                       0.000
R2:                              0.181   Adjusted R2:                    -0.251
AIC:                             7.609   AIC*n:                        4786.136
BIC:                          1723.819   BIC':                          -67.635
BIC used by Stata:            4398.133   AIC used by Stata:            4358.136

(Indices saved in matrix fs_mod1)

.
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       621
Method: Pooled OLS                               Number of groups  =         9
Group variable (i): hmccode                      F(223,     8)     =     53.13
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1844
                                                 Root MSE          =    9.4540

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0992621   .0241944    -4.10   0.003    -.1550545   -.0434698
L_tot_oil_~p |  -7.848441   7.582036    -1.04   0.331    -25.33265    9.635765
D_tot_oil_~p |   6.362857   6.543461     0.97   0.359    -8.726392    21.45211
 L_D_TOI_INT |   13.04372    6.47615     2.01   0.079    -1.890313    27.97775
L2_D_TOI_INT |   13.94014   7.526921     1.85   0.101    -3.416974    31.29725
L3_D_TOI_INT |   2.622079    5.01308     0.52   0.615    -8.938103    14.18226
L4_D_TOI_INT |    9.03867   4.874902     1.85   0.101    -2.202874    20.28021


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   79.06782   74.92691     1.06   0.322    -93.71395    251.8496
------------------------------------------------------------------------------



quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2206.014   Log-Lik Full Model:          -2142.712
D(397):                       4285.425   LR(9):                         126.603
                                         Prob > LR:                       0.000
R2:                              0.184   Adjusted R2:                    -0.252
AIC:                             7.622   AIC*n:                        4733.425
BIC:                          1732.186   BIC':                          -68.721
BIC used by Stata:            4343.307   AIC used by Stata:            4303.425

(Indices saved in matrix fs_mod1)

.
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       614
Method: Pooled OLS                               Number of groups  =         9
Group variable (i): hmccode                      F(224,     8)     =     58.66
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1881
                                                 Root MSE          =    9.4916

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.101087   .0249389    -4.05   0.004    -.1585963   -.0435777
L_tot_oil_~p |  -6.147372   7.831779    -0.78   0.455    -24.20749    11.91274
D_tot_oil_~p |   7.503505   7.486503     1.00   0.346    -9.760402    24.76741
 L_D_TOI_INT |   12.47777   6.629972     1.88   0.097    -2.810978    27.76651
L2_D_TOI_INT |    13.5437   7.530335     1.80   0.110    -3.821288    30.90868
L3_D_TOI_INT |   2.325152    5.49703     0.42   0.683    -10.35102    15.00133
L4_D_TOI_INT |   8.754811     4.7997     1.82   0.106    -2.313318    19.82294
L5_D_TOI_INT |   .1386427   6.097685     0.02   0.982    -13.92264    14.19993


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   60.81266   77.30349     0.79   0.454    -117.4495    239.0748
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -2183.078   Log-Lik Full Model:         -2119.109
D(389):                       4238.219   LR(9):                        127.937
                                         Prob > LR:                      0.000
R2:                              0.188   Adjusted R2:                   -0.254
AIC:                             7.636   AIC*n:                       4688.219
BIC:                          1740.841   BIC':                         -70.157
BIC used by Stata:            4302.419   AIC used by Stata:           4258.219

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 7, COLUMN 1 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      439 |          1
      510 |          1
----------------------

.
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(47 missing values
generated)


Results for H0: no cointegration
With 66 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+------------+-----------+-----------+----------------|
     Gt    |   -2.512   |   -1.460  |   0.072   |      0.120     |
     Ga    |   -9.432   |    3.082  |   0.999   |      0.080     |
     Pt    |  -13.660   |    4.003  |   1.000   |      0.440     |
     Pa    |   -7.592   |    1.776  |   0.962   |      0.440     |
-----------------------------------------------------------------+
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(47 missing values
generated)


Results for H0: no cointegration
With 66 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.688  |   -3.220  |   0.001   |      0.040     |
     Ga    |  -12.780  |   -0.917  |   0.180   |      0.000     |
     Pt    |  -16.605  |    0.636  |   0.738   |      0.000     |
     Pa    |  -10.686  |   -2.323  |   0.010   |      0.000     |
----------------------------------------------------------------+
```

FULL DATASET, NO LAGS BUT TRUNCATED, 1 LAG AND TRUNCATED

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2709
Method: Pooled OLS                               Number of groups  =        66
Group variable (i): hmccode                      F(116,    65)     =    920.19
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0826
                                                 Root MSE          =    6.4371

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0702925   .0140451    -5.00   0.000    -.0983426   -.0422425
L_tot_oil_~p |  -.0060442   .0146108    -0.41   0.680     -.035224    .0231356
D_tot_oil_~p |   -.026599    .020773    -1.28   0.205    -.0680855    .0148875


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0859869   .2136073     0.40   0.689    -.3406163    .5125901
------------------------------------------------------------------------------




.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      316 |         14
      317 |         14
      343 |         16
      349 |         15
      366 |         16
      367 |         16
      368 |         16
----------------------
```

drop if hmccode == 316 | hmccode == 317 | hmccode == 343 | hmccode == 349 | hmccode == 366 | hmccode == 367 | hmccode == 368

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(47 missing values
generated)


Results for H0: no cointegration
With 59 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.309  |   -2.459  |   0.007   |      0.000     |
     Ga    |   -9.990  |    7.727  |   1.000   |      0.040     |
     Pt    |  -14.646  |    6.780  |   1.000   |      0.280     |
     Pa    |   -7.822  |    6.692  |   1.000   |      0.480     |
----------------------------------------------------------------+

.
```

```
NOW WE TRY AGAIN WITH 1 LAG

xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(8)
bootstrap(25)
With 1 lag(s), 1 lead(s) and a constant and a trend at least 28 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      205 |         24
----------------------
```

drop if hmccode == 316 | hmccode == 317 | hmccode == 343 | hmccode == 349 | hmccode == 366 | hmccode == 367 | hmccode == 368

```
So we drop 205 along with those above, which were already deleted from dataset to run
with controls and no lags




xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(47 missing values
generated)


Results for H0: no cointegration
With 58 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.797  |    1.801  |   0.964   |      0.080     |
     Ga    |   -8.022  |    9.289  |   1.000   |      0.840     |
     Pt    |  -11.914  |    9.340  |   1.000   |      0.280     |
     Pa    |   -6.113  |    8.077  |   1.000   |      0.520     |
-----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2689
Method: Pooled OLS                               Number of groups  =        66
Group variable (i): hmccode                      F(123,    65)     =    239.48
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1289
                                                 Root MSE          =    6.2072

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0777002   .0156746    -4.96   0.000    -.1090045    -.046396
L_tot_oil_~p |     .00511   .0222533     0.23   0.819    -.0393329    .0495528
D_tot_oil_~p |  -.0328715   .0236033    -1.39   0.168    -.0800106    .0142675
L_LogPerCa~p |   .0637506   .3509791     0.18   0.856     -.637203    .7647042
L_CivilWar~p |   .2503798   .9021477     0.28   0.782    -1.551334    2.052093
L_REGION_D~E |   .0379353   .0168166     2.26   0.027     .0043502    .0715204
L_WORLD_DE~E |    .009458   .0139278     0.68   0.500    -.0183577    .0372738
D_LogperCa~t |  -.0109962    2.59602    -0.00   0.997    -5.195605    5.173613
D_Region_D~e |   .4061662   .1642174     2.47   0.016     .0782014     .734131
D_World_De~e |   .1097154   .0566659     1.94   0.057    -.0034542     .222885
_
------------------------------------------------------------------------------


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0657654     .28523    -0.23   0.818    -.6354091    .5038782
------------------------------------------------------------------------------

.
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2589
Method: Pooled OLS                               Number of groups  =        59
Group variable (i): hmccode                      F(116,    58)     =     96.54
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1309
                                                 Root MSE          =    6.3029

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0775751   .0157478    -4.93   0.000    -.1090977   -.0460525
L_tot_oil_~p |   .0045012   .0225938     0.20   0.843    -.0407253    .0497277
D_tot_oil_~p |   -.034233   .0243362    -1.41   0.165    -.0829471    .0144811
L_LogPerCa~p |   .0841305   .3552123     0.24   0.814    -.6269043    .7951652
L_CivilWar~p |   .2181084   .9081316     0.24   0.811    -1.599715    2.035931
L_REGION_D~E |   .0375703   .0175179     2.14   0.036     .0025044    .0726362
L_WORLD_DE~E |   .0988271   .0320952     3.08   0.003     .0345815    .1630726
D_LogperCa~t |  -.1574484   2.658987    -0.06   0.953    -5.479989    5.165092
D_Region_D~e |   .4190364   .1660853     2.52   0.014     .0865805    .7514923
D_World_De~e |   .5480507   .0543433    10.08   0.000     .4392708    .6568305
------------------------------------------------------------------------------


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0580239   .2902855    -0.20   0.842    -.6390936    .5230457
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET (THE 1 LAG OF WESTERLUND TEST VERSION WITH CONTROLS)

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2565
Method: Pooled OLS                               Number of groups  =        58
Group variable (i): hmccode                      F(115,    57)     =    157.27
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1313
                                                 Root MSE          =    6.3310

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.077737   .0157458    -4.94   0.000    -.1092675   -.0462066
L_tot_oil_~p |   .0033803   .0227212     0.15   0.882    -.0421181    .0488787
D_tot_oil_~p |  -.0347733   .0244599    -1.42   0.161    -.0837533    .0142068
L_LogPerCa~p |   .0910787   .3552122     0.26   0.799    -.6202215    .8023789
L_CivilWar~p |   .2232213    .908229     0.25   0.807    -1.595476    2.041918
L_REGION_D~E |   .0382637   .0176124     2.17   0.034     .0029954     .073532
L_WORLD_DE~E |   .1000087   .0325697     3.07   0.003     .0347889    .1652285
D_LogperCa~t |  -.1507355   2.659864    -0.06   0.955    -5.477021     5.17555
D_Region_D~e |   .4202088   .1663161     2.53   0.014     .0871665    .7532511
D_World_De~e |   .5523414   .0531564    10.39   0.000     .4458976    .6587852


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.0434838   .2915524    -0.15   0.882    -.6273074    .5403398
------------------------------------------------------------------------------
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2837
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(116,    66)     =   4843.93
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1161
                                                 Root MSE          =   10.1523

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1443271   .0143872   -10.03   0.000     -.173052   -.1156022
L_tot_oil_~p |     .12017   .0245675     4.89   0.000     .0711195    .1692206
D_tot_oil_~p |   .0209109   .0476189     0.44   0.662    -.0741633    .1159852

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8326228   .1620925    -5.14   0.000    -1.156251   -.5089947
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10716.709   Log-Lik Full Model:        -10541.612
D(2720):                     21083.224   LR(48):                       350.194
                                         Prob > LR:                      0.000
R2:                              0.116   Adjusted R2:                    0.079
AIC:                             7.514   AIC*n:                      21317.224
BIC:                          -542.143   BIC':                          31.430
BIC used by Stata:           21472.798   AIC used by Stata:          21181.224

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2818
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(117,    66)     =   1147.12
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1182
                                                 Root MSE          =   10.1723

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1465844   .0148542    -9.87   0.000    -.1762417    -.116927
L_tot_oil_~p |   .1234762   .0281015     4.39   0.000     .0673697    .1795827
D_tot_oil_~p |   .0230136   .0491696     0.47   0.641    -.0751568    .1211839
 L_D_TOI_INT |  -.0131797   .0300636    -0.44   0.663    -.0732036    .0468442


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8423557   .1849484    -4.55   0.000    -1.211617   -.4730943
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode) required


fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10652.822   Log-Lik Full Model:         -10475.647
D(2700):                     20951.295   LR(49):                        354.349
                                         Prob > LR:                       0.000
R2:                              0.118   Adjusted R2:                     0.080
AIC:                             7.519   AIC*n:                       21187.295
BIC:                          -496.919   BIC':                           34.897
BIC used by Stata:           21348.484   AIC used by Stata:           21051.295

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2799
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(118,    66)     =    799.39
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1180
                                                 Root MSE          =   10.1684

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1465012   .0154037    -9.51   0.000    -.1772557   -.1157467
L_tot_oil_~p |   .1227744   .0275829     4.45   0.000     .0677033    .1778455
D_tot_oil_~p |   .0139989   .0434846     0.32   0.749    -.0728209    .1008186
 L_D_TOI_INT |   -.014051   .0311635    -0.45   0.654     -.076271    .0481689
L2_D_TOI_INT |  -.0055883   .0371881    -0.15   0.881    -.0798368    .0686602


outreg using TODAY, nolabel 3aster bracket bdec(3) append

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8380437   .1795409    -4.67   0.000    -1.196509   -.4795787
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10578.720   Log-Lik Full Model:         -10403.000
D(2680):                     20806.001   LR(50):                        351.439
                                         Prob > LR:                       0.000
R2:                              0.118   Adjusted R2:                     0.080
AIC:                             7.518   AIC*n:                       21044.001
BIC:                          -465.206   BIC':                           45.412
BIC used by Stata:           21210.789   AIC used by Stata:           20908.001

(Indices saved in matrix fs_mod1)

.
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2779
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(119,    66)     =    466.97
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1200
                                                 Root MSE          =   10.1782

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1486686   .0157021    -9.47   0.000    -.1800189   -.1173183
L_tot_oil_~p |   .1204805   .0285489     4.22   0.000     .0634808    .1774802
D_tot_oil_~p |   .0160175   .0442498     0.36   0.719    -.0723302    .1043651
 L_D_TOI_INT |  -.0153009   .0334458    -0.46   0.649    -.0820776    .0514758
L2_D_TOI_INT |  -.0044566   .0400469    -0.11   0.912    -.0844128    .0754995
L3_D_TOI_INT |   .0192905   .0345012     0.56   0.578    -.0495934    .0881744


outreg using TODAY, nolabel 3aster bracket bdec(3) append

.
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8103964   .1807336    -4.48   0.000    -1.171243   -.4495501
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10508.033   Log-Lik Full Model:        -10330.385
D(2659):                     20660.770   LR(51):                       355.296
                                         Prob > LR:                      0.000
R2:                              0.120   Adjusted R2:                    0.081
AIC:                             7.521   AIC*n:                      20900.770
BIC:                          -424.691   BIC':                          49.127
BIC used by Stata:           21073.122   AIC used by Stata:          20764.770

(Indices saved in matrix fs_mod1)

.
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2757
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(120,    66)     =    483.84
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1189
                                                 Root MSE          =   10.0862

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.146008   .0149544    -9.76   0.000    -.1758654   -.1161506
L_tot_oil_~p |   .1252352   .0299439     4.18   0.000     .0654503    .1850201
D_tot_oil_~p |   .0113083   .0489287     0.23   0.818    -.0863811    .1089976
 L_D_TOI_INT |   -.020088   .0349783    -0.57   0.568    -.0899244    .0497484
L2_D_TOI_INT |   -.010607   .0421148    -0.25   0.802     -.094692    .0734779
L3_D_TOI_INT |   .0162511    .032662     0.50   0.620    -.0489606    .0814629
L4_D_TOI_INT |  -.0335579   .0216415    -1.55   0.126    -.0767665    .0096508


outreg using TODAY, nolabel 3aster bracket bdec(3) append

.
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8577284   .1935563    -4.43   0.000    -1.244176   -.4712808
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10397.044   Log-Lik Full Model:        -10222.548
D(2636):                     20445.097   LR(52):                       348.991
                                         Prob > LR:                      0.000
R2:                              0.119   Adjusted R2:                    0.079
AIC:                             7.503   AIC*n:                      20687.097
BIC:                          -437.027   BIC':                          62.947
BIC used by Stata:           20864.958   AIC used by Stata:          20551.097

(Indices saved in matrix fs_mod1)

.
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2735
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(121,    66)     =   1161.83
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1214
                                                 Root MSE          =   10.1109

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1493432   .0152882    -9.77   0.000    -.1798672   -.1188193
L_tot_oil_~p |   .1242191   .0290241     4.28   0.000     .0662706    .1821676
D_tot_oil_~p |   .0048785   .0574032     0.08   0.933    -.1097307    .1194878
 L_D_TOI_INT |  -.0168951     .03503    -0.48   0.631    -.0868348    .0530446
L2_D_TOI_INT |  -.0093904   .0399701    -0.23   0.815    -.0891933    .0704125
L3_D_TOI_INT |   .0182329   .0293225     0.62   0.536    -.0403114    .0767771
L4_D_TOI_INT |  -.0332671   .0226473    -1.47   0.147    -.0784838    .0119496
L5_D_TOI_INT |   .0155069    .041625     0.37   0.711       -.0676    .0986139

outreg using TODAY, nolabel 3aster bracket bdec(3) append

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -.831769   .1951659    -4.26   0.000     -1.22143   -.4421076
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -10323.676   Log-Lik Full Model:        -10146.640
D(2613):                     20293.280   LR(53):                       354.072
                                         Prob > LR:                      0.000
R2:                              0.121   Adjusted R2:                    0.081
AIC:                             7.509   AIC*n:                      20537.280
BIC:                          -385.706   BIC':                          65.364
BIC used by Stata:           20720.629   AIC used by Stata:          20401.280

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 7, COLUMN 2 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Continuous time-series are required

Following series contain holes:


----------------------
  hmccode |      Freq.
----------+-----------
      451 |          1
      551 |          1
      800 |          1
----------------------

.
```

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 67 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.206  |    1.618  |   0.947   |      0.600     |
     Ga    | -5.0e+12  | -6.0e+12  |   0.000   |      0.000     |
     Pt    | -1.4e+11  | -1.6e+11  |   0.000   |      0.000     |
     Pa    | -6.6e+10  | -8.9e+10  |   0.000   |      0.000     |
----------------------------------------------------------------
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 67 series and 1 covariate

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.739  |   -3.755  |   0.000   |      0.040     |
     Ga    |  -10.140  |    2.253  |   0.988   |      0.120     |
     Pt    |  -17.585  |   -0.336  |   0.368   |      0.160     |
     Pa    |   -8.496  |    0.582  |   0.720   |      0.200     |
----------------------------------------------------------------+
```

FULL DATASET, NO LAGS BUT TRUNCATED, 1 LAG AND TRUNCATED

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2837
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(116,    66)     =   4843.93
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1161
                                                 Root MSE          =   10.1523

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1443271   .0143872   -10.03   0.000     -.173052   -.1156022
L_tot_oil_~p |     .12017   .0245675     4.89   0.000     .0711195    .1692206
D_tot_oil_~p |   .0209109   .0476189     0.44   0.662    -.0741633    .1159852


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.8326228   .1620925    -5.14   0.000    -1.156251   -.5089947
------------------------------------------------------------------------------



.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      344 |         15
      347 |         15
      359 |         16
      531 |         14
      565 |         17
      698 |         14
----------------------
```

drop if hmccode == 344 | hmccode == 347 | hmccode == 359 | hmccode == 531 | hmccode == 565 | hmccode == 698

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 61 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.043  |   -0.237  |   0.406   |      0.000     |
     Ga    | -1.0e+12  | -8.6e+11  |   0.000   |      0.000     |
     Pt    | -6.4e+10  | -6.4e+10  |   0.000   |      0.000     |
     Pa    | -3.1e+10  | -2.7e+10  |   0.000   |      0.000     |
-----------------------------------------------------------------+

.
```

NOW WE TRY AGAIN WITH 1 LAG

So, these must be deleted in addition to:

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(8)
bootstrap(25)
With 1 lag(s), 1 lead(s) and a constant and a trend at least 28 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      205 |         23
----------------------
```

drop if hmccode == 316 | hmccode == 317 | hmccode == 343 | hmccode == 349 | hmccode == 366 | hmccode == 367 | hmccode == 368

So we drop 205 along with those above, which were already deleted from dataset to run with controls and no lags

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 60 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-3.185	-1.431	0.076	0.000
Ga	-7.987	9.476	1.000	0.440
Pt	-16.924	4.674	1.000	0.000
Pa	-6.510	7.874	1.000	0.520

.

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2825
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(123,    66)     =   1378.20
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1456
                                                 Root MSE          =   10.0130

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1537302   .0157299    -9.77   0.000     -.185136   -.1223243
L_tot_oil_~p |   .1841181   .0378863     4.86   0.000     .1084756    .2597605
D_tot_oil_~p |   .0583413   .0524067     1.11   0.270     -.046292    .1629746
L_LogPerCa~p |  -2.141388   .5783226    -3.70   0.000    -3.296046   -.9867296
L_CivilWar~p |  -.1817758   .6952747    -0.26   0.795    -1.569937    1.206385
L_REGION_D~E |   .0403536   .0151153     2.67   0.010     .0101749    .0705323
L_WORLD_DE~E |   .2657981   .0382143     6.96   0.000     .1895009    .3420953
D_LogperCa~t |    .063039   4.551111     0.01   0.989    -9.023547    9.149625
D_Region_D~e |    .497644   .0637224     7.81   0.000     .3704181    .6248698
D_World_De~e |   .6601879   .0824052     8.01   0.000     .4956607    .8247151

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -1.19767   .2421091    -4.95   0.000    -1.681057   -.7142837
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2739
Method: Pooled OLS                               Number of groups  =        61
Group variable (i): hmccode                      F(117,    60)     =    750.62
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1446
                                                 Root MSE          =   10.0622

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1547127   .0158737    -9.75   0.000    -.1864649   -.1229605
L_tot_oil_~p |    .183718   .0381848     4.81   0.000      .107337    .2600989
D_tot_oil_~p |   .0654056   .0530957     1.23   0.223    -.0408016    .1716127
L_LogPerCa~p |  -2.156047   .5869126    -3.67   0.001    -3.330047   -.9820473
L_CivilWar~p |  -.1363225   .6831439    -0.20   0.843    -1.502814    1.230169
L_REGION_D~E |   .0400894    .015258     2.63   0.011     .0095689    .0706099
L_WORLD_DE~E |   .2269835   .0259091     8.76   0.000     .1751576    .2788094
D_LogperCa~t |  -1.081189   4.670681    -0.23   0.818    -10.42394    8.261564
D_Region_D~e |   .4920128   .0650787     7.56   0.000      .361836    .6221896
D_World_De~e |   .1642696   .0899809     1.83   0.073     -.015719    .3442582

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.187478   .2429771    -4.89   0.000    -1.673505   -.7014518
------------------------------------------------------------------------------

.
```

RUNNING THE MODEL ON THE TRUNCATED DATASET (THE 1 LAG OF WESTERLUND TEST VERSION WITH CONTROLS)

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2716
Method: Pooled OLS                               Number of groups  =        60
Group variable (i): hmccode                      F(116,    59)     =   1265.74
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1448
                                                 Root MSE          =   10.1038

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1547754   .0158867    -9.74   0.000    -.1865646   -.1229862
L_tot_oil_~p |   .1838591   .0383394     4.80   0.000     .1071421     .260576
D_tot_oil_~p |   .0653273   .0532077     1.23   0.224    -.0411411    .1717957
L_LogPerCa~p |  -2.151402   .5930552    -3.63   0.001    -3.338103   -.9647014
L_CivilWar~p |  -.1358456   .6841459    -0.20   0.843    -1.504818    1.233127
L_REGION_D~E |   .0399981   .0152516     2.62   0.011     .0094797    .0705165
L_WORLD_DE~E |   .2258017   .0258826     8.72   0.000     .1740106    .2775927
D_LogperCa~t |  -1.049194   4.677806    -0.22   0.823    -10.40946    8.311075
D_Region_D~e |   .4920321   .0650255     7.57   0.000     .3619164    .6221477
D_World_De~e |   .1616171   .0899694     1.80   0.078    -.0184113    .3416455

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.187909   .2441978    -4.86   0.000    -1.676547   -.6992701
------------------------------------------------------------------------------

.
```

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1252
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 79,    29)     =    316.02
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1287
                                                 Root MSE          =   10.9786

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1408564   .0198474    -7.10   0.000    -.1814489   -.1002639
L_tot_oil_~p |   7.772417   8.683978     0.90   0.378    -9.988312    25.53315
D_tot_oil_~p |   8.514462   16.93464     0.50   0.619    -26.12076    43.14969


.
outreg using TODAY, nolabel 3aster bracket bdec(3) replace

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -55.17972    62.5316    -0.88   0.385    -183.0712    72.71176
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4821.677   Log-Lik Full Model:          -4735.441
D(1172):                      9470.881   LR(28):                        172.473
                                         Prob > LR:                       0.000
R2:                              0.129   Adjusted R2:                     0.071
AIC:                             7.692   AIC*n:                        9630.881
BIC:                          1111.594   BIC':                           27.237
BIC used by Stata:            9677.724   AIC used by Stata:            9528.881

(Indices saved in matrix fs_mod1)

.
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1242
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 80,    29)     =    398.02
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1310
                                                 Root MSE          =   11.0034

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1424037   .0202058    -7.05   0.000    -.1837293   -.1010782
L_tot_oil_~p |   8.522907   9.402439     0.91   0.372    -10.70724    27.75305
D_tot_oil_~p |    8.62482   16.55871     0.52   0.606    -25.24154    42.49118
 L_D_TOI_INT |  -4.141658   10.24161    -0.40   0.689     -25.0881    16.80478


outreg using TODAY, nolabel 3aster bracket bdec(3) append

.
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -59.8503   66.95085    -0.89   0.379    -196.7802    77.07956
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4786.763   Log-Lik Full Model:         -4699.540
D(1161):                      9399.079   LR(28):                       174.447
                                         Prob > LR:                      0.000
R2:                              0.131   Adjusted R2:                    0.072
AIC:                             7.698   AIC*n:                       9561.079
BIC:                          1127.560   BIC':                          25.039
BIC used by Stata:            9605.689   AIC used by Stata:           9457.079

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1232
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 81,    29)     =    417.20
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1331
                                                 Root MSE          =   11.0393

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1436899   .0204519    -7.03   0.000    -.1855188   -.1018611
L_tot_oil_~p |   7.011639   10.19101     0.69   0.497    -13.83131    27.85459
D_tot_oil_~p |   8.865312   16.71518     0.53   0.600    -25.32108     43.0517
 L_D_TOI_INT |  -3.227559   11.92871    -0.27   0.789    -27.62451    21.16939
L2_D_TOI_INT |   8.083076   9.608148     0.84   0.407    -11.56779    27.73395


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -48.79701   71.75822    -0.68   0.502     -195.559    97.96503
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4752.855   Log-Lik Full Model:          -4664.842
D(1150):                      9329.684   LR(28):                        176.026
                                         Prob > LR:                       0.000
R2:                              0.133   Adjusted R2:                     0.073
AIC:                             7.706   AIC*n:                        9493.684
BIC:                          1145.831   BIC':                           23.233
BIC used by Stata:            9536.059   AIC used by Stata:            9387.684

(Indices saved in matrix fs_mod1)

.
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1222
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 82,    29)     =    495.28
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1384
                                                 Root MSE          =   11.0427

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1447375   .0198937    -7.28   0.000    -.1854247   -.1040503
L_tot_oil_~p |   3.753811   11.23728     0.33   0.741    -19.22901    26.73663
D_tot_oil_~p |   7.248847   17.06183     0.42   0.674     -27.6465     42.1442
 L_D_TOI_INT |   1.225793   11.67504     0.10   0.917    -22.65234    25.10393
L2_D_TOI_INT |   10.56543   9.454162     1.12   0.273    -8.770506    29.90136
L3_D_TOI_INT |   22.51643   18.70448     1.20   0.238    -15.73852    60.77139


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -25.9353    78.0916    -0.33   0.742    -185.6506      133.78
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4717.457   Log-Lik Full Model:          -4626.462
D(1139):                      9252.924   LR(28):                        181.990
                                         Prob > LR:                       0.000
R2:                              0.138   Adjusted R2:                     0.077
AIC:                             7.708   AIC*n:                        9418.924
BIC:                          1156.634   BIC':                           17.041
BIC used by Stata:            9459.063   AIC used by Stata:            9310.924

(Indices saved in matrix fs_mod1)

.
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1210
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 83,    29)     =    683.26
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1462
                                                 Root MSE          =   11.0429

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1488111   .0199102    -7.47   0.000     -.189532   -.1080901
L_tot_oil_~p |   1.211432   11.24727     0.11   0.915    -21.79181    24.21468
D_tot_oil_~p |    12.2445   19.50249     0.63   0.535    -27.64257    52.13158
 L_D_TOI_INT |   2.529044   11.20721     0.23   0.823    -20.39227    25.45036
L2_D_TOI_INT |   16.07477   9.427151     1.71   0.099    -3.205921    35.35546
L3_D_TOI_INT |   25.23851   17.00124     1.48   0.148    -9.532931    60.00996
L4_D_TOI_INT |   27.45681   13.34659     2.06   0.049      .159965    54.75365


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -8.14074   75.70912    -0.11   0.915    -162.9833    146.7018
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4675.730   Log-Lik Full Model:          -4580.084
D(1126):                      9160.168   LR(28):                        191.292
                                         Prob > LR:                       0.000
R2:                              0.146   Adjusted R2:                     0.084
AIC:                             7.709   AIC*n:                        9328.168
BIC:                          1167.397   BIC':                            7.462
BIC used by Stata:            9366.021   AIC used by Stata:            9218.168

(Indices saved in matrix fs_mod1)

.
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1198
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 84,    29)     =    741.93
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1522
                                                 Root MSE          =   11.0578

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1513909   .0210337    -7.20   0.000    -.1944097    -.108372
L_tot_oil_~p |   6.281615   10.02155     0.63   0.536    -14.21476    26.77799
D_tot_oil_~p |   20.49332   21.76164     0.94   0.354    -24.01422    65.00087
 L_D_TOI_INT |  -5.338478    8.81198    -0.61   0.549      -23.361    12.68405
L2_D_TOI_INT |   14.32706   7.584023     1.89   0.069    -1.184013    29.83813
L3_D_TOI_INT |   19.56803   11.16753     1.75   0.090    -3.272138     42.4082
L4_D_TOI_INT |   25.86832   10.37266     2.49   0.019     4.653848     47.0828
L5_D_TOI_INT |  -22.17997   17.16721    -1.29   0.207    -57.29085    12.93091

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -41.49269   66.46823    -0.62   0.537    -177.4355    94.45011
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -4634.202   Log-Lik Full Model:          -4535.304
D(1113):                      9070.608   LR(28):                        197.797
                                         Prob > LR:                       0.000
R2:                              0.152   Adjusted R2:                     0.089
AIC:                             7.713   AIC*n:                        9240.608
BIC:                          1181.209   BIC':                            0.679
BIC used by Stata:            9276.172   AIC used by Stata:            9128.608

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS SUPPORTING WORK FOR THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 7 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM? THESE ANALYSES ARE NOT REPORTED IN THAT TABLE, HOWEVER. THESE ANALYSES ARE ESTIMATED FOR VERY UNEQUAL COUNTRIES.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Following series contain holes:


----------------------
  hmccode |      Freq.
----------+-----------
      451 |          1
      800 |          1
----------------------

xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 30 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.184   |    1.231   |   0.891    |      0.640     |
     Ga    |   -9.191   |    2.272   |   0.989    |      0.120     |
     Pt    |  -11.890   |   -0.366   |   0.357    |      0.360     |
     Pa    |   -8.268   |    0.593   |   0.724    |      0.360     |
-----------------------------------------------------------------+


NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 30 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -3.180   |   -5.481   |   0.000    |      0.000     |
     Ga    |  -11.009   |    0.808   |   0.790    |      0.000     |
     Pt    |  -13.003   |   -1.638   |   0.051    |      0.040     |
     Pa    |   -8.851   |    0.072   |   0.529    |      0.120     |
-----------------------------------------------------------------+

.
```

FULL DATASET, NO LAGS BUT TRUNCATED, 1 LAG AND TRUNCATED

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1252
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 79,    29)     =    316.02
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1287
                                                 Root MSE          =   10.9786

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1408564   .0198474    -7.10   0.000    -.1814489   -.1002639
L_tot_oil_~p |   7.772417   8.683978     0.90   0.378    -9.988312    25.53315
D_tot_oil_~p |   8.514462   16.93464     0.50   0.619    -26.12076    43.14969

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -55.17972    62.5316    -0.88   0.385    -183.0712    72.71176
------------------------------------------------------------------------------


.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      344 |         15
      347 |         15
      359 |         16
      531 |         14
```

drop if hmccode == 344 | hmccode == 347 | hmccode == 359 | hmccode == 531 | hmccode == 565 | hmccode == 698

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 26 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.929  |    0.476  |   0.683   |      0.320     |
     Ga    |  -11.275  |    4.418  |   1.000   |      0.000     |
     Pt    |  -12.315  |    1.898  |   0.971   |      0.400     |
     Pa    |   -8.591  |    4.007  |   1.000   |      0.360     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 26 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-3.479	-2.571	0.005	0.000
Ga	-8.050	6.203	1.000	0.560
Pt	-12.846	1.364	0.914	0.040
Pa	-5.260	5.890	1.000	0.880

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1251
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 86,    29)     =   8610.52
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1611
                                                 Root MSE          =   10.8004

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1559604   .0211813    -7.36   0.000     -.199281   -.1126399
L_tot_oil_~p |   7.826115   8.616423     0.91   0.371    -9.796449    25.44868
D_tot_oil_~p |   7.808916   16.80774     0.46   0.646    -26.56678    42.18461
L_LogPerCa~p |  -3.467331   1.175111    -2.95   0.006    -5.870703    -1.06396
L_CivilWar~p |  -.7964273   .7836254    -1.02   0.318    -2.399121    .8062665
L_REGION_D~E |   .0582927   .0247708     2.35   0.026     .0076306    .1089547
L_WORLD_DE~E |   .2376045   .0518821     4.58   0.000     .1314937    .3437152
D_LogperCa~t |  -4.626526   5.788843    -0.80   0.431    -16.46604    7.212988
D_Region_D~e |   .5526052   .1230274     4.49   0.000     .3009859    .8042244
D_World_De~e |   .8768627   .2277437     3.85   0.001     .4110746    1.342651

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -50.18013    55.8698    -0.90   0.376    -164.4467    64.08644
------------------------------------------------------------------------------

.
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1195
Method: Pooled OLS                               Number of groups  =        26
Group variable (i): hmccode                      F( 82,    25)     =   3166.51
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1600
                                                 Root MSE          =   10.8278

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1578466   .0210412    -7.50   0.000    -.2011817   -.1145115
L_tot_oil_~p |   8.095284   8.599119     0.94   0.356    -9.614934     25.8055
D_tot_oil_~p |   7.348004   16.84765     0.44   0.666    -27.35038    42.04638
L_LogPerCa~p |  -3.540547   1.225928    -2.89   0.008    -6.065393   -1.015702
L_CivilWar~p |  -.7927069   .7683775    -1.03   0.312     -2.37521    .7897962
L_REGION_D~E |   .0568882    .024789     2.29   0.030     .0058343     .107942
L_WORLD_DE~E |   .2413003   .0530965     4.54   0.000     .1319461    .3506546
D_LogperCa~t |  -7.211339   6.389938    -1.13   0.270    -20.37166    5.948986
D_Region_D~e |   .5362036   .1260763     4.25   0.000     .2765446    .7958626
D_World_De~e |   .9008714   .2338767     3.85   0.001     .4191933     1.38255

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -51.28576   54.93441    -0.93   0.359    -164.4253    61.85376
------------------------------------------------------------------------------
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR A SERIES OF ROBUSTNESS CHECKS FOR TABLE 7, COLUMNS 1 and 2 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM? THESE REGRESSIONS DO NOT APPEAR IN THE PAPER, BUT ARE IN THE APPENDIX

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

These are the robustness checks using UTIP Gini

EQUAL COUNTRIES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      317 |         14
      343 |         16
      344 |         15
      346 |          3
      349 |         15
      359 |         16
      367 |         16
      368 |         16
      369 |         15
      373 |         15
----------------------
```

drop if hmccode == 317 | hmccode == 343 | hmccode == 344 | hmccode == 346 | hmccode == 349 | hmccode == 359 | hmccode == 367 | hmccode == 368 | hmccode == 369 | hmccode == 373

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 48 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.196  |   -1.363  |   0.086   |      0.080     |
     Ga    | -1.9e+12  | -1.4e+12  |   0.000   |      0.000     |
     Pt    | -1.7e+11  | -1.7e+11  |   0.000   |      0.000     |
     Pa    | -1.0e+11  | -7.8e+10  |   0.000   |      0.000     |
----------------------------------------------------------------+

.
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 48 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.763	1.893	0.971	0.240
Ga	-8.358	8.197	1.000	0.680
Pt	-11.448	7.885	1.000	0.200
Pa	-7.236	6.485	1.000	0.280

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2303
Method: Pooled OLS                               Number of groups  =        58
Group variable (i): hmccode                      F(114,    57)     =   4589.88
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1795
                                                 Root MSE          =    6.1837

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0787307   .0147436    -5.34   0.000    -.1082542   -.0492072
L_tot_oil_~p |  -.1211691   .1325259    -0.91   0.364    -.3865476    .1442094
D_tot_oil_~p |  -.1811698   .2085029    -0.87   0.389    -.5986897    .2363502
L_LogPerCa~p |  -.4948017   .5868437    -0.84   0.403    -1.669936    .6803325
L_CivilWar~p |   .3344093   1.460532     0.23   0.820    -2.590255    3.259074
L_REGION_D~E |   .0532319   .0173001     3.08   0.003     .0185891    .0878747
L_WORLD_DE~E |   .0548969   .0355006     1.55   0.128    -.0161918    .1259857
D_LogperCa~t |   -9.46666   4.690138    -2.02   0.048     -18.8585   -.0748205
D_Region_D~e |   .5154215   .1219229     4.23   0.000      .271275     .759568
D_World_De~e |   .0025394   .0950506     0.03   0.979    -.1877961     .192875

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.539033   1.710597     0.90   0.372    -1.886378    4.964443
------------------------------------------------------------------------------
.
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2172
Method: Pooled OLS                               Number of groups  =        48
Group variable (i): hmccode                      F(104,    47)     =    230.76
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1824
                                                 Root MSE          =    6.2404

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0767623   .0148663    -5.16   0.000    -.1066694   -.0468552
L_tot_oil_~p |  -.1289369   .1298344    -0.99   0.326      -.39013    .1322563
D_tot_oil_~p |  -.0960803   .1917927    -0.50   0.619    -.4819176    .2897569
L_LogPerCa~p |  -.4035054   .6024528    -0.67   0.506    -1.615484    .8084732
L_CivilWar~p |    .748086   1.525503     0.49   0.626    -2.320829    3.817001
L_REGION_D~E |   .0514903   .0173212     2.97   0.005     .0166445    .0863361
L_WORLD_DE~E |   .0447374   .0355511     1.26   0.214    -.0267822    .1162571
D_LogperCa~t |  -12.86425   5.444749    -2.36   0.022    -23.81768    -1.91083
D_Region_D~e |   .5228808     .12243     4.27   0.000     .2765835    .7691782
D_World_De~e |  -.0173013   .0939922    -0.18   0.855    -.2063892    .1717866

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.679691   1.708048     0.98   0.330    -1.756458    5.115839
------------------------------------------------------------------------------
```

UNEQUAL COUNTRIES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      371 |         16
      531 |         14
      565 |         17
      703 |         15
```

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(116 missing values
generated)


Results for H0: no cointegration
With 75 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.102  |   -0.818  |   0.207   |      0.040     |
     Ga    |  -10.233  |    8.483  |   1.000   |      0.080     |
     Pt    |  -20.047  |    4.095  |   1.000   |      0.200     |
     Pa    |   -8.755  |    6.649  |   1.000   |      0.200     |
-----------------------------------------------------------------+
```

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(116 missing values
generated)


Results for H0: no cointegration
With 75 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.985  |    0.276  |   0.609   |      0.000     |
     Ga    |   -7.432  |   11.117  |   1.000   |      0.600     |
     Pt    |  -17.594  |    6.559  |   1.000   |      0.080     |
     Pa    |   -5.948  |    9.343  |   1.000   |      0.560     |
----------------------------------------------------------------+
```

ESTIMATING ON THE FULL DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_41-950    (naturally coded; _Ihmccode_41 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3363
Method: Pooled OLS                               Number of groups  =        79
Group variable (i): hmccode                      F(138,    78)     =    376.46
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1284
                                                 Root MSE          =    9.6518

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1497557   .0165712    -9.04   0.000    -.1827465    -.116765
L_tot_oil_~p |   .1089347   .0278288     3.91   0.000     .0535318    .1643376
D_tot_oil_~p |   .0006874   .0254628     0.03   0.979    -.0500052      .05138
L_LogPerCa~p |  -.7627321   .6248858    -1.22   0.226    -2.006784      .48132
L_CivilWar~p |  -.5720915   .5761439    -0.99   0.324    -1.719106    .5749229
L_REGION_D~E |   .0512913   .0169506     3.03   0.003     .0175453    .0850374
L_WORLD_DE~E |    .131818   .0169288     7.79   0.000     .0981153    .1655206
D_LogperCa~t |   3.266198   2.381886     1.37   0.174    -1.475773     8.00817
D_Region_D~e |   .4196401   .0990917     4.23   0.000     .2223636    .6169166
D_World_De~e |   .5232542   .1050051     4.98   0.000     .3142051    .7323033

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7274158   .1785371    -4.07   0.000    -1.082856   -.3719759
------------------------------------------------------------------------------
```

ESTIMATING ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_41-950    (naturally coded; _Ihmccode_41 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3305
Method: Pooled OLS                               Number of groups  =        75
Group variable (i): hmccode                      F(134,    74)     =    367.09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1286
                                                 Root MSE          =    9.6420

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1478397   .0166413    -8.88   0.000    -.1809983   -.1146811
L_tot_oil_~p |   .1107018   .0277551     3.99   0.000     .0553985    .1660051
D_tot_oil_~p |   .0003735    .025552     0.01   0.988    -.0505401    .0512871
L_LogPerCa~p |  -.8152039    .634536    -1.28   0.203    -2.079544    .4491366
L_CivilWar~p |  -.5941377   .5732259    -1.04   0.303    -1.736315    .5480397
L_REGION_D~E |   .0494152    .017275     2.86   0.005      .014994    .0838364
L_WORLD_DE~E |    .126504   .0167135     7.57   0.000     .0932017    .1598063
D_LogperCa~t |   3.418604   2.445291     1.40   0.166    -1.453745    8.290953
D_Region_D~e |   .4223367     .09934     4.25   0.000     .2243974    .6202759
D_World_De~e |   .5221469   .1071466     4.87   0.000     .3086526    .7356413

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.7487966    .183808    -4.07   0.000    -1.115042   -.3825511
------------------------------------------------------------------------------

.
```

HIGHLY UNEQUAL

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(6)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      371 |         16
----------------------

. drop if hmccode == 371



xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0)leads(1) lrwindow(6)
> bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 15 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -4.853   |   -7.733   |   0.000    |      0.000     |
     Ga    |  -14.067   |    2.181   |   0.985    |      0.000     |
     Pt    |  -10.494   |    0.297   |   0.617    |      0.040     |
     Pa    |  -10.399   |    2.268   |   0.988    |      0.080     |
-----------------------------------------------------------------+

.
```

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1)leads(1) lrwindow(6)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 15 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.223  |   -0.875  |   0.191   |      0.000     |
     Ga    |   -9.315  |    4.180  |   1.000   |      0.040     |
     Pt    |   -6.242  |    4.566  |   1.000   |      0.560     |
     Pa    |   -5.515  |    4.364  |   1.000   |      0.600     |
-----------------------------------------------------------------+

.
```

NO TRUNCATION

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_371-712   (naturally coded; _Ihmccode_371 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       642
Method: Pooled OLS                               Number of groups  =        16
Group variable (i): hmccode                      F( 72,    15)     =     59.93
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2416
                                                 Root MSE          =    8.3763

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.2227791   .0506557    -4.40   0.001    -.3307492    -.114809
L_tot_oil_~p |   .0655255   .0512816     1.28   0.221    -.0437787    .1748298
D_tot_oil_~p |  -.0447114   .0482147    -0.93   0.368    -.1474785    .0580558
L_LogPerCa~p |  -.1327135   .9428963    -0.14   0.890    -2.142449    1.877022
L_CivilWar~p |   -3.68311   2.185684    -1.69   0.113    -8.341786    .9755652
L_REGION_D~E |   .3226603   .0880294     3.67   0.002       .13503    .5102906
L_WORLD_DE~E |  -.1057254    .048116    -2.20   0.044    -.2082822   -.0031685
D_LogperCa~t |  -.3034844   3.371278    -0.09   0.929    -7.489194    6.882225
D_Region_D~e |   .7367475   .2668881     2.76   0.015     .1678891    1.305606
D_World_De~e |   1.081409   .4275211     2.53   0.023     .1701689    1.992648
```

```
. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.2941278   .2130593    -1.38   0.188    -.7482529    .1599972
------------------------------------------------------------------------------
```

TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_411-712   (naturally coded; _Ihmccode_411 omitted)
i.year            _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       627
Method: Pooled OLS                               Number of groups  =        15
Group variable (i): hmccode                      F( 71,    14)     =     37.36
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2486
                                                 Root MSE          =    7.9940

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.2055642   .0498002    -4.13   0.001    -.3123752   -.0987533
L_tot_oil_~p |   .0661233   .0485788     1.36   0.195    -.0380679    .1703146
D_tot_oil_~p |  -.0515571   .0464296    -1.11   0.286    -.1511386    .0480244
L_LogPerCa~p |  -.1781197   .9293696    -0.19   0.851    -2.171419     1.81518
L_CivilWar~p |   -3.32445   2.234908    -1.49   0.159    -8.117852    1.468951
L_REGION_D~E |   .2866038   .0821853     3.49   0.004     .1103339    .4628738
L_WORLD_DE~E |  -.1196145   .0450579    -2.65   0.019     -.216254   -.0229749
D_LogperCa~t |   .1798649   3.341392     0.05   0.958    -6.986709    7.346439
D_Region_D~e |   .7705303   .2606142     2.96   0.010     .2115684    1.329492
D_World_De~e |   1.197154   .4186706     2.86   0.013     .2991945    2.095113

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3216674   .2197662    -1.46   0.165    -.7930191    .1496843
```

LOW ECONOMIC DEVELOPMENT

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4609
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(259,    48)     =      9.96
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0841
                                                 Root MSE          =    7.9610

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0697956    .007981    -8.75   0.000    -.0858424   -.0537488
L_tot_oil_~p |   .6284883   .3290483     1.91   0.062    -.0331076    1.290084
D_tot_oil_~p |  -.0373045   .7894683    -0.05   0.963    -1.624637    1.550028


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -9.004698   4.572791    -1.97   0.055    -18.19891    .1895141
------------------------------------------------------------------------------


.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

.
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -16171.721   Log-Lik Full Model:        -15969.303
D(4349):                     31938.605   LR(48):                       404.838
                                         Prob > LR:                      0.000
R2:                              0.084   Adjusted R2:                    0.030
AIC:                             7.042   AIC*n:                      32458.605
BIC:                         -4748.542   BIC':                           0.079
BIC used by Stata:           32351.958   AIC used by Stata:          32036.605

(Indices saved in matrix fs_mod1)
```

1 LAG OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4571
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(260,    48)     =     10.17
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0841
                                                 Root MSE          =    7.9661

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0701253   .0078915    -8.89   0.000    -.0859923   -.0542583
L_tot_oil_~p |    .694459   .3760957     1.85   0.071     -.061732     1.45065
D_tot_oil_~p |  -.2487178   .7901579    -0.31   0.754    -1.837437    1.340001
 L_D_TOI_INT |   -.986653   .7346007    -1.34   0.186    -2.463667    .4903607

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -9.903111   5.277356    -1.88   0.067    -20.51395    .7077237
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -16040.121   Log-Lik Full Model:         -15839.441
D(4310):                     31678.882   LR(48):                        401.361
                                         Prob > LR:                       0.000
R2:                              0.084   Adjusted R2:                     0.030
AIC:                             7.045   AIC*n:                       32200.882
BIC:                         -4643.588   BIC':                            3.159
BIC used by Stata:           32091.829   AIC used by Stata:           31776.882

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4533
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(261,    48)     =     23.09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0841
                                                 Root MSE          =    7.9596

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0697989   .0081419    -8.57   0.000    -.0861694   -.0534285
L_tot_oil_~p |   .7655041   .5150069     1.49   0.144    -.2699866    1.800995
D_tot_oil_~p |  -.3651716   .7943908    -0.46   0.648    -1.962401    1.232058
 L_D_TOI_INT |  -1.092375   .9076324    -1.20   0.235    -2.917293    .7325419
L2_D_TOI_INT |  -.2285993    .973227    -0.23   0.815    -2.185403    1.728205


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -10.96728   7.249218    -1.51   0.137    -25.54281    3.608253
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -15902.170   Log-Lik Full Model:         -15702.942
D(4271):                     31405.883   LR(47):                        398.457
                                         Prob > LR:                       0.000
R2:                              0.084   Adjusted R2:                     0.029
AIC:                             7.044   AIC*n:                       31929.883
BIC:                         -4552.261   BIC':                           -2.757
BIC used by Stata:           31810.002   AIC used by Stata:           31501.883

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4493
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(262,    48)     =    105.98
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0839
                                                 Root MSE          =    7.9361

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0688522   .0077065    -8.93   0.000    -.0843473   -.0533572
L_tot_oil_~p |   .6118271   .5342723     1.15   0.258    -.4623994    1.686053
D_tot_oil_~p |   -.313253   .7705511    -0.41   0.686     -1.86255    1.236044
 L_D_TOI_INT |  -.9670035   .9098577    -1.06   0.293    -2.796395    .8623879
L2_D_TOI_INT |  -.0925281   1.015441    -0.09   0.928    -2.134209    1.949153
L3_D_TOI_INT |   .9349141   .6760044     1.38   0.173    -.4242837    2.294112

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -8.886088   7.662382    -1.16   0.252    -24.29234    6.520163
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -15746.675   Log-Lik Full Model:        -15549.891
D(4230):                     31099.783   LR(47):                       393.567
                                         Prob > LR:                      0.000
R2:                              0.084   Adjusted R2:                    0.029
AIC:                             7.039   AIC*n:                      31625.783
BIC:                         -4475.684   BIC':                           1.716
BIC used by Stata:           31503.476   AIC used by Stata:          31195.783

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4451
Method: Pooled OLS                               Number of groups  =        48
Group variable (i): hmccode                      F(263,    47)     =      7.73
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0858
                                                 Root MSE          =    7.9420

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.069896   .0077721    -8.99   0.000    -.0855314   -.0542606
L_tot_oil_~p |   .7592364    .652759     1.16   0.251    -.5539454    2.072418
D_tot_oil_~p |  -.1851995    .742558    -0.25   0.804    -1.679034    1.308635
 L_D_TOI_INT |   -1.04353   .9937106    -1.05   0.299    -3.042618     .955558
L2_D_TOI_INT |  -.2611543   1.140199    -0.23   0.820     -2.55494    2.032631
L3_D_TOI_INT |   .7306932   .8139478     0.90   0.374    -.9067586    2.368145
L4_D_TOI_INT |  -1.309808   1.295172    -1.01   0.317    -3.915358    1.295743

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -10.86237   9.196679    -1.18   0.243     -29.3637    7.638963
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -15606.641   Log-Lik Full Model:         -15407.087
D(4187):                     30814.174   LR(47):                        399.108
                                         Prob > LR:                       0.000
R2:                              0.086   Adjusted R2:                     0.030
AIC:                             7.042   AIC*n:                       31342.174
BIC:                         -4360.328   BIC':                           -4.266
BIC used by Stata:           31217.416   AIC used by Stata:           30910.174

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4410
Method: Pooled OLS                               Number of groups  =        48
Group variable (i): hmccode                      F(264,    47)     =      9.09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0872
                                                 Root MSE          =    7.8993

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0698337   .0079655    -8.77   0.000    -.0858583   -.0538091
L_tot_oil_~p |   .6073329   .4927147     1.23   0.224    -.3838813    1.598547
D_tot_oil_~p |  -.3697777   .4308858    -0.86   0.395    -1.236608    .4970528
 L_D_TOI_INT |  -1.028996   1.006304    -1.02   0.312    -3.053418    .9954255
L2_D_TOI_INT |  -.1847856     1.0197    -0.18   0.857    -2.236158    1.866587
L3_D_TOI_INT |   .9233212   .7787459     1.19   0.242    -.6433134    2.489956
L4_D_TOI_INT |  -1.055793   .8881502    -1.19   0.241    -2.842521    .7309349
L5_D_TOI_INT |   1.411451   1.988291     0.71   0.481    -2.588475    5.411378

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -8.696841   6.952997    -1.25   0.217    -22.68447    5.290786
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -15441.341   Log-Lik Full Model:         -15240.105
D(4145):                     30480.210   LR(46):                        402.471
                                         Prob > LR:                       0.000
R2:                              0.087   Adjusted R2:                     0.031
AIC:                             7.032   AIC*n:                       31010.210
BIC:                         -4303.096   BIC':                          -16.456
BIC used by Stata:           30874.617   AIC used by Stata:           30574.210

(Indices saved in matrix fs_mod1)


.
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 7, COLUMN 3 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      702 |          1
      860 |          5
----------------------


drop if hmccode == 702 | hmccode == 860
(6 observations deleted)



. xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 48 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.598   |   -1.971   |   0.024    |      0.000     |
     Ga    |  -11.854   |    0.161   |   0.564    |      0.000     |
     Pt    |  -18.463   |   -4.377   |   0.000    |      0.120     |
     Pa    |  -14.182   |   -5.931   |   0.000    |      0.120     |
-----------------------------------------------------------------+
```

```
NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 48 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.823  |   -3.897  |   0.000   |      0.000     |
     Ga    |  -13.583  |   -1.601  |   0.055   |      0.000     |
     Pt    |  -19.787  |   -5.891  |   0.000   |      0.000     |
     Pa    |  -15.719  |   -7.668  |   0.000   |      0.000     |
-----------------------------------------------------------------+
```

FULL DATASET, NO LAGS

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4609
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(259,    48)     =      9.96
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0841
                                                 Root MSE          =    7.9610

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0697956    .007981    -8.75   0.000    -.0858424   -.0537488
L_tot_oil_~p |   .6284883   .3290483     1.91   0.062    -.0331076    1.290084
D_tot_oil_~p |  -.0373045   .7894683    -0.05   0.963    -1.624637    1.550028

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -9.004698   4.572791    -1.97   0.055    -18.19891    .1895141
------------------------------------------------------------------------------
```

.

Truncated, no lags

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4605
Method: Pooled OLS                               Number of groups  =        48
Group variable (i): hmccode                      F(257,    47)     =      9.84
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0841
                                                 Root MSE          =    7.9635

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0697848   .0079804    -8.74   0.000    -.0858393   -.0537304
L_tot_oil_~p |   .6161684   .3323285     1.85   0.070    -.0523903    1.284727
D_tot_oil_~p |   -.003644   .7963014    -0.00   0.996    -1.605596    1.598308

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4551592   .3688682    -1.23   0.221    -1.188694    .2783757
------------------------------------------------------------------------------

.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      347 |         15
      359 |         16
      704 |         15
----------------------
```

drop if hmccode == 347 | hmccode == 359 | hmccode == 704

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 45 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |    Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.626  |   -4.457  |   0.000   |      0.000     |
     Ga    |  -14.079  |    3.770  |   1.000   |      0.120     |
     Pt    |  -19.652  |   -0.968  |   0.166   |      0.120     |
     Pa    |  -13.105  |    1.916  |   0.972   |      0.400     |
-----------------------------------------------------------------+
```

```
NOW WE TRY AGAIN WITH 1 LAG

xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 45 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.471  |   -3.327  |   0.000   |      0.000     |
     Ga    |  -12.639  |    4.819  |   1.000   |      0.480     |
     Pt    |  -18.383  |    0.306  |   0.620   |      0.200     |
     Pa    |  -10.613  |    3.769  |   1.000   |      0.640     |
-----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3043
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(266,    48)     =   2227.88
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1214
                                                 Root MSE          =    8.9718

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0932395   .0123255    -7.56   0.000    -.1180215   -.0684575
L_tot_oil_~p |   .7741522    .340162     2.28   0.027     .0902108    1.458094
D_tot_oil_~p |  -.2598173   .7935538    -0.33   0.745    -1.855364    1.335729
L_LogPerCa~p |  -.1775031    .606535    -0.29   0.771    -1.397024    1.042017
L_CivilWar~p |  -.1049528   .7556668    -0.14   0.890    -1.624323    1.414417
L_REGION_D~E |   .0214733   .0133805     1.60   0.115      -.00543    .0483767
L_WORLD_DE~E |  -.1898962   .0339738    -5.59   0.000    -.2582052   -.1215872
D_LogperCa~t |   .4358824     3.0541     0.14   0.887    -5.704797    6.576562
D_Region_D~e |   .3453716    .091419     3.78   0.000     .1615615    .5291818
D_World_De~e |  -.7248427   .0963606    -7.52   0.000    -.9185886   -.5310967

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -8.302834   3.378079    -2.46   0.018    -15.09492   -1.510751
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3039
Method: Pooled OLS                               Number of groups  =        48
Group variable (i): hmccode                      F(264,    47)     =   3159.87
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1214
                                                 Root MSE          =    8.9759

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0932169   .0123245    -7.56   0.000    -.1180106   -.0684231
L_tot_oil_~p |   .7527827   .3455347     2.18   0.034     .0576565    1.447909
D_tot_oil_~p |  -.2175814   .7978782    -0.27   0.786    -1.822705    1.387543
L_LogPerCa~p |  -.1681026   .6037907    -0.28   0.782    -1.382773    1.046568
L_CivilWar~p |  -.1044896    .755761    -0.14   0.891    -1.624885    1.415905
L_REGION_D~E |    .021452   .0133862     1.60   0.116    -.0054776    .0483815
L_WORLD_DE~E |   -.190168   .0339518    -5.60   0.000    -.2584701   -.1218659
D_LogperCa~t |   .4642616   3.053604     0.15   0.880    -5.678798    6.607321
D_Region_D~e |   .3460799    .091447     3.78   0.000     .1621124    .5300474
D_World_De~e |  -.7247595   .0963378    -7.52   0.000    -.9185661   -.5309529

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -8.075607   3.436352    -2.35   0.023    -14.98866   -1.162558
------------------------------------------------------------------------------

.
```

Very low economic development

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2543
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(233,    23)     =     12.33
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1017
                                                 Root MSE          =    8.3854

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0730364   .0105681    -6.91   0.000    -.0948981   -.0511747
L_tot_oil_~p |   1.370092   .4996976     2.74   0.012     .3363885    2.403795
D_tot_oil_~p |   1.117581    .998449     1.12   0.275    -.9478685     3.18303


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -18.75902   6.328645    -2.96   0.007    -31.85082   -5.667219
------------------------------------------------------------------------------
.

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp yi.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -9030.812   Log-Lik Full Model:          -8894.401
D(2309):                     17788.803   LR(22):                        272.822
                                         Prob > LR:                       0.000
R2:                              0.102   Adjusted R2:                     0.012
AIC:                             7.179   AIC*n:                       18256.803
BIC:                          -316.296   BIC':                         -100.317
BIC used by Stata:           17969.148   AIC used by Stata:           17834.803

(Indices saved in matrix fs_mod1)
```

```
1 LAG OF D.TOTAL OIL INCOME

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2529
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(234,    23)     =     11.77
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1020
                                                 Root MSE          =    8.4073

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0736759   .0107077    -6.88   0.000    -.0958265   -.0515254
L_tot_oil_~p |   1.396682   .5116125     2.73   0.012     .3383306    2.455033
D_tot_oil_~p |   1.139028   1.024811     1.11   0.278     -.980954    3.259011
 L_D_TOI_INT |  -.1664607   .6855285    -0.24   0.810    -1.584584    1.251663

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -18.95709    6.44461    -2.94   0.007    -32.28878   -5.625401
------------------------------------------------------------------------------

.
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -8987.342   Log-Lik Full Model:          -8851.314
D(2294):                     17702.629   LR(22):                        272.055
                                         Prob > LR:                       0.000
R2:                              0.102   Adjusted R2:                     0.012
AIC:                             7.186   AIC*n:                       18172.629
BIC:                          -272.190   BIC':                          -99.673
BIC used by Stata:           17882.847   AIC used by Stata:           17748.629

(Indices saved in matrix fs_mod1)
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2515
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(235,    23)     =     11.18
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1026
                                                 Root MSE          =    8.4300

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0738677   .0108019    -6.84   0.000     -.096213   -.0515223
L_tot_oil_~p |   1.416471   .5331137     2.66   0.014     .3136412      2.5193
D_tot_oil_~p |   1.103619   1.030063     1.07   0.295    -1.027228    3.234466
 L_D_TOI_INT |  -.2369733   .7574368    -0.31   0.757    -1.803851    1.329904
L2_D_TOI_INT |  -.4638879   .6527173    -0.71   0.484    -1.814136    .8863607

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -19.17579   6.742645    -2.84   0.009    -33.12401   -5.227566
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -8944.566   Log-Lik Full Model:           -8808.402
D(2279):                     17616.804   LR(22):                         272.329
                                         Prob > LR:                        0.000
R2:                              0.103   Adjusted R2:                      0.012
AIC:                             7.192   AIC*n:                        18088.804
BIC:                          -227.830   BIC':                          -100.068
BIC used by Stata:           17796.894   AIC used by Stata:            17662.804

(Indices saved in matrix fs_mod1)
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2499
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(236,    23)     =      5.95
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1035
                                                 Root MSE          =    8.4455

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0741881   .0107743    -6.89   0.000    -.0964764   -.0518998
L_tot_oil_~p |   1.325995   .5452353     2.43   0.023     .1980895      2.4539
D_tot_oil_~p |   1.238686    1.02317     1.21   0.238    -.8779036    3.355275
 L_D_TOI_INT |  -.0913738   .7875146    -0.12   0.909    -1.720472    1.537724
L2_D_TOI_INT |  -.3366663   .6305673    -0.53   0.599    -1.641094    .9677615
L3_D_TOI_INT |   1.518702   1.140663     1.33   0.196    -.8409382    3.878343
```

```
nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -17.87342   6.844207    -2.61   0.016    -32.03174   -3.715095
------------------------------------------------------------------------------
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -8892.706   Log-Lik Full Model:          -8756.139
D(2262):                     17512.277   LR(23):                        273.135
                                         Prob > LR:                       0.000
R2:                              0.104   Adjusted R2:                     0.012
AIC:                             7.197   AIC*n:                       17986.277
BIC:                          -184.810   BIC':                          -93.191
BIC used by Stata:           17692.221   AIC used by Stata:           17558.277

(Indices saved in matrix fs_mod1)
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2482
Method: Pooled OLS                               Number of groups  =        23
Group variable (i): hmccode                      F(237,    22)     =     11.56
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1056
                                                 Root MSE          =    8.4290

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0748262   .0108333    -6.91   0.000     -.097293   -.0523593
L_tot_oil_~p |     1.2983   .5490702     2.36   0.027      .159598    2.437002
D_tot_oil_~p |   1.403303   1.174974     1.19   0.245    -1.033445    3.840051
 L_D_TOI_INT |  -.0092347   .8129821    -0.01   0.991    -1.695256    1.676787
L2_D_TOI_INT |  -.2338525   .6597096    -0.35   0.726    -1.602006    1.134301
L3_D_TOI_INT |   1.619638   1.146916     1.41   0.172    -.7589209    3.998196
L4_D_TOI_INT |   .7061663   .7876204     0.90   0.380    -.9272585    2.339591

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -17.35088   6.894052    -2.52   0.020    -31.64827    -3.05349
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -8829.895   Log-Lik Full Model:          -8691.394
D(2244):                     17382.788   LR(22):                        277.003
                                         Prob > LR:                       0.000
R2:                              0.106   Adjusted R2:                     0.014
AIC:                             7.195   AIC*n:                       17858.788
BIC:                          -158.156   BIC':                         -105.033
BIC used by Stata:           17562.575   AIC used by Stata:           17428.788

(Indices saved in matrix fs_mod1)
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2466
Method: Pooled OLS                               Number of groups  =        23
Group variable (i): hmccode                      F(238,    22)     =     11.04
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1068
                                                 Root MSE          =    8.3306

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0740905    .011129    -6.66   0.000    -.0971707   -.0510103
L_tot_oil_~p |   1.318307    .556919     2.37   0.027     .1633279    2.473287
D_tot_oil_~p |   1.632466   1.384529     1.18   0.251    -1.238871    4.503803
 L_D_TOI_INT |  -.2174195   .7838905    -0.28   0.784    -1.843109     1.40827
L2_D_TOI_INT |  -.3957571   .6465487    -0.61   0.547    -1.736617    .9451028
L3_D_TOI_INT |   1.504343   1.076329     1.40   0.176    -.7278263    3.736512
L4_D_TOI_INT |   .6265336   .8075278     0.78   0.446    -1.048177    2.301244
L5_D_TOI_INT |  -.7506601   .6209906    -1.21   0.240    -2.038516    .5371956


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   -17.7932   6.845284    -2.60   0.016    -31.98945   -3.596948
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:      -8744.820   Log-Lik Full Model:         -8605.584
D(2227):                     17211.168   LR(23):                       278.473
                                         Prob > LR:                      0.000
R2:                              0.107   Adjusted R2:                    0.015
AIC:                             7.173   AIC*n:                      17689.168
BIC:                          -182.488   BIC':                         -98.835
BIC used by Stata:           17390.806   AIC used by Stata:          17257.168

(Indices saved in matrix fs_mod1)
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR TABLE 7, COLUMN 4 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply   by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

VERY LOW ECONOMIC DEVELOPMENT

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 9 observations are required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      860 |          5
----------------------

drop if hmccode == 702 | hmccode == 860
(6 observations deleted)


xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 23 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.297  |    0.413  |   0.660   |      0.240     |
     Ga    |  -12.079  |   -0.047  |   0.481   |      0.120     |
     Pt    |  -13.343  |   -3.673  |   0.000   |      0.120     |
     Pa    |  -14.734  |   -4.538  |   0.000   |      0.080     |
-----------------------------------------------------------------+

.
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 23 series and 1 covariate
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.654	-1.699	0.045	0.040
Ga	-14.726	-1.914	0.028	0.000
Pt	-14.535	-5.036	0.000	0.000
Pa	-17.409	-6.630	0.000	0.000

FULL DATASET, NO LAGS

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2543
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(233,    23)     =     12.33
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1017
                                                 Root MSE          =    8.3854

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0730364   .0105681    -6.91   0.000    -.0948981   -.0511747
L_tot_oil_~p |   1.370092   .4996976     2.74   0.012     .3363885    2.403795
D_tot_oil_~p |   1.117581    .998449     1.12   0.275    -.9478685     3.18303

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -18.75902   6.328645    -2.96   0.007    -31.85082   -5.667219
------------------------------------------------------------------------------

.



.
```

Truncated, no lags

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-850    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2539
Method: Pooled OLS                               Number of groups  =        23
Group variable (i): hmccode                      F(232,    22)     =     13.55
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1017
                                                 Root MSE          =    8.3904

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0730146   .0105733    -6.91   0.000    -.0949424   -.0510868
L_tot_oil_~p |   1.362161   .5082945     2.68   0.014     .3080229      2.4163
D_tot_oil_~p |   1.232261   .9937408     1.24   0.228    -.8286317    3.293153


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -18.65601    6.43436    -2.90   0.008    -32.00006    -5.31197
------------------------------------------------------------------------------

.
```

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 23 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.046  |   -0.163  |   0.435   |      0.080     |
     Ga    |  -13.336  |    3.082  |   0.999   |      0.600     |
     Pt    |  -13.922  |   -0.564  |   0.287   |      0.280     |
     Pa    |  -13.857  |    0.970  |   0.834   |      0.520     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 23 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.106  |   -0.477  |   0.317   |     0.080      |
     Ga    |  -12.645  |    3.442  |   1.000   |     0.560      |
     Pt    |  -13.484  |   -0.124  |   0.451   |     0.160      |
     Pa    |  -12.092  |    1.908  |   0.972   |     0.440      |
----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1740
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(240,    23)     =     80.19
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1440
                                                 Root MSE          =    9.1737

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1015248    .016224    -6.26   0.000    -.1350867   -.0679629
L_tot_oil_~p |   1.540034   .5506696     2.80   0.010     .4008874    2.679181
D_tot_oil_~p |   .8969756   1.005592     0.89   0.382    -1.183249      2.9772
L_LogPerCa~p |   1.191851   .6913161     1.72   0.098    -.2382455    2.621947
L_CivilWar~p |  -.0321611   .7575028    -0.04   0.967    -1.599175    1.534853
L_REGION_D~E |   .0351755   .0177272     1.98   0.059    -.0014961    .0718471
L_WORLD_DE~E |   -.015926   .0302239    -0.53   0.603     -.078449     .046597
D_LogperCa~t |   1.230203   4.278232     0.29   0.776    -7.619994     10.0804
D_Region_D~e |    .454466   .0910175     4.99   0.000     .2661819      .64275
D_World_De~e |  -.1884375   .1091803    -1.73   0.098    -.4142942    .0374192

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -15.16905   4.951745    -3.06   0.006    -25.41251   -4.925585
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_70-850    (naturally coded; _Ihmccode_70 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1736
Method: Pooled OLS                               Number of groups  =        23
Group variable (i): hmccode                      F(239,    22)     =     78.46
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1441
                                                 Root MSE          =    9.1814

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1014341    .016244    -6.24   0.000     -.135122   -.0677461
L_tot_oil_~p |   1.501078   .5678917     2.64   0.015     .3233424    2.678813
D_tot_oil_~p |    1.02644   .9949749     1.03   0.313    -1.037012    3.089892
L_LogPerCa~p |    1.20132   .6922024     1.74   0.097    -.2342194     2.63686
L_CivilWar~p |  -.0329335   .7574084    -0.04   0.966    -1.603702    1.537835
L_REGION_D~E |   .0351715   .0177473     1.98   0.060    -.0016342    .0719771
L_WORLD_DE~E |  -.0160409   .0302128    -0.53   0.601    -.0786984    .0466165
D_LogperCa~t |   1.288132   4.273312     0.30   0.766    -7.574174    10.15044
D_Region_D~e |   .4562825   .0914032     4.99   0.000     .2667238    .6458412
D_World_De~e |  -.1881715   .1092195    -1.72   0.099     -.414679    .0383359

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -14.79856   5.094889    -2.90   0.008    -25.36471   -4.232403
------------------------------------------------------------------------------

.
```

HIGH ECONOMIC DEVELOPMENT

THIS IS THE BIC STATISTIC HORSE RACE ON THE CORRECT DISTRIBUTED LAG MODEL TO RUN. EACH MODEL IS RUN ON THE FULL DATASET (SAME NUMBER OF COUNTRIES IN THE PANEL)

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4558
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(260,    44)     =  1.69e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0780
                                                 Root MSE          =    6.5504

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0516415   .0076171    -6.78   0.000    -.0669928   -.0362903
L_tot_oil_~p |  -.0108466   .0152488    -0.71   0.481    -.0415785    .0198854
D_tot_oil_~p |  -.0116885   .0247658    -0.47   0.639    -.0616006    .0382236

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2100361   .2959243     0.71   0.482    -.3863601    .8064323
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -15089.282   Log-Lik Full Model:        -14904.253
D(4297):                     29808.507   LR(44):                       370.058
                                         Prob > LR:                      0.000
R2:                              0.078   Adjusted R2:                    0.024
AIC:                             6.654   AIC*n:                      30330.507
BIC:                         -6392.168   BIC':                           0.626
BIC used by Stata:           30187.616   AIC used by Stata:          29898.507

(Indices saved in matrix fs_mod1)
```

```
1 LAG OF D.TOTAL OIL INCOME

xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4521
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(261,    44)     =  1.39e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0781
                                                 Root MSE          =    6.5717

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0519599    .007683    -6.76   0.000    -.0674439   -.0364759
L_tot_oil_~p |  -.0098654   .0175579    -0.56   0.577    -.0452511    .0255202
D_tot_oil_~p |  -.0115427    .024359    -0.47   0.638    -.0606351    .0375497
 L_D_TOI_INT |  -.0064569   .0277239    -0.23   0.817    -.0623309     .049417

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1898666   .3385016     0.56   0.578    -.4923386    .8720718
```

```
quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -14980.185   Log-Lik Full Model:         -14796.346
D(4259):                     29592.691   LR(44):                        367.679
                                         Prob > LR:                       0.000
R2:                              0.078   Adjusted R2:                     0.023
AIC:                             6.662   AIC*n:                       30116.691
BIC:                         -6253.133   BIC':                            2.647
BIC used by Stata:           29971.433   AIC used by Stata:           29682.691

(Indices saved in matrix fs_mod1)

.
```

2 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4483
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(262,    44)     =     17.56
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0791
                                                 Root MSE          =    6.5969

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.052544    .007729    -6.80   0.000    -.0681207   -.0369672
L_tot_oil_~p |  -.0186466   .0177159    -1.05   0.298    -.0543506    .0170574
D_tot_oil_~p |  -.0116461   .0247312    -0.47   0.640    -.0614886    .0381964
 L_D_TOI_INT |   .0047081   .0264119     0.18   0.859    -.0485216    .0579377
L2_D_TOI_INT |   .0605564   .0248151     2.44   0.019     .0105449    .1105678


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3548761   .3338164     1.06   0.294    -.3178867    1.027639
------------------------------------------------------------------------------

quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -14872.099   Log-Lik Full Model:         -14687.441
D(4220):                     29374.881   LR(44):                        369.316
                                         Prob > LR:                       0.000
R2:                              0.079   Adjusted R2:                     0.024
AIC:                             6.670   AIC*n:                       29900.881
BIC:                         -6107.080   BIC':                            0.638
BIC used by Stata:           29744.836   AIC used by Stata:           29462.881
```

3 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4445
Method: Pooled OLS                                Number of groups  =        45
Group variable (i): hmccode                       F(263,    44)     =    222.25
maximum lag: 1                                    Prob > F          =    0.0000
                                                  R-squared         =    0.0772
                                                  Root MSE          =    6.6029

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |   -.051551    .007832    -6.58   0.000    -.0673354   -.0357666
L_tot_oil_~p |  -.0282643   .0210161    -1.34   0.186    -.0706194    .0140908
D_tot_oil_~p |  -.0177675   .0255944    -0.69   0.491    -.0693496    .0338146
 L_D_TOI_INT |   .0149186   .0278134     0.54   0.594    -.0411356    .0709729
L2_D_TOI_INT |    .074968   .0265188     2.83   0.007      .021523     .128413
L3_D_TOI_INT |   .0663574   .0326645     2.03   0.048     .0005264    .1321883


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5482788   .3976276     1.38   0.175     -.253087    1.349645
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT i.hmccode i.year,
cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -14743.928   Log-Lik Full Model:         -14565.350
D(4181):                     29130.701   LR(45):                        357.155
                                         Prob > LR:                       0.000
R2:                              0.077   Adjusted R2:                     0.021
AIC:                             6.672   AIC*n:                       29658.701
BIC:                         -5987.756   BIC':                           20.824
BIC used by Stata:           29508.680   AIC used by Stata:           29220.701
```

4 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4404
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(264,    44)     =    110.94
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0773
                                                 Root MSE          =    6.6141

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0514198   .0079301    -6.48   0.000    -.0674019   -.0354377
L_tot_oil_~p |  -.0318911   .0240312    -1.33   0.191    -.0803227    .0165406
D_tot_oil_~p |   -.014451   .0251652    -0.57   0.569     -.065168    .0362661
 L_D_TOI_INT |   .0171037   .0277169     0.62   0.540    -.0387561    .0729635
L2_D_TOI_INT |   .0797068   .0310743     2.57   0.014     .0170806     .142333
L3_D_TOI_INT |   .0727197   .0378714     1.92   0.061    -.0036051    .1490444
L4_D_TOI_INT |   .0249337   .0378418     0.66   0.513    -.0513313    .1011988


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |     .62021   .4550703     1.36   0.180     -.296924    1.537344
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT i.hmccode
i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -14614.323   Log-Lik Full Model:         -14437.208
D(4139):                     28874.416   LR(43):                        354.230
                                         Prob > LR:                       0.000
R2:                              0.077   Adjusted R2:                     0.021
AIC:                             6.677   AIC*n:                       29404.416
BIC:                         -5852.905   BIC':                            6.551
BIC used by Stata:           29243.588   AIC used by Stata:           28962.416
```

5 LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_D_TOI_INT L2_D_TOI_INT  L3_D_TOI_INT L4_D_TOI_INT L5_D_TOI_INT i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4363
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(265,    44)     =    320.74
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0777
                                                 Root MSE          =    6.6074

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0513399   .0079949    -6.42   0.000    -.0674525   -.0352273
L_tot_oil_~p |  -.0506041   .0254598    -1.99   0.053     -.101915    .0007068
D_tot_oil_~p |  -.0527202   .0416657    -1.27   0.212    -.1366918    .0312514
 L_D_TOI_INT |   .0422006   .0335379     1.26   0.215    -.0253905    .1097918
L2_D_TOI_INT |   .0858914   .0290381     2.96   0.005      .027369    .1444139
L3_D_TOI_INT |   .0890529   .0371063     2.40   0.021     .0142701    .1638356
L4_D_TOI_INT |   .0357258   .0332748     1.07   0.289    -.0313351    .1027868
L5_D_TOI_INT |   .0889963   .0321891     2.76   0.008     .0241234    .1538693


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .9856679   .4865817     2.03   0.049      .005027    1.966309
------------------------------------------------------------------------------


quietly xi: regress D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp
D_tot_oil_inc_interp L_D_TOI_INT L2_D_TOI_INT L3_D_TOI_INT  L4_D_TOI_INT  L5_D_TOI_INT
i.hmccode i.year, cluster(hmccode)

.
. fitstat, saving(mod1)

Measures of Fit for regress of D_polity_s_interp

Log-Lik Intercept Only:     -14473.595   Log-Lik Full Model:         -14297.067
D(4097):                     28594.133   LR(43):                        353.057
                                         Prob > LR:                       0.000
R2:                              0.078   Adjusted R2:                     0.020
AIC:                             6.676   AIC*n:                       29126.133
BIC:                         -5742.476   BIC':                            7.322
BIC used by Stata:           28962.893   AIC used by Stata:           28682.133

(Indices saved in matrix fs_mod1)

.
```

THIS WORKSHEET DOCUMENTS COINTEGRATION TESTS AND REGRESSIONS RUN TO COMPLEMENT THOSE IN TABLE 7, COLUMN 3&4 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM?

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

High Economic Development

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(20)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 45 series and 1 covariate

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value   |  P-value   | Robust P-value |
-----------+------------+------------+------------+----------------|
     Gt    |   -2.130   |    1.950   |   0.974    |      0.800     |
     Ga    |  -11.137   |    0.863   |   0.806    |      0.050     |
     Pt    |  -15.156   |   -1.127   |   0.130    |      0.000     |
     Pa    |  -10.896   |   -2.148   |   0.016    |      0.000     |
-----------------------------------------------------------------+
```

NOW WE TRY COINTEGRATION TESTS WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(20)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 45 series and 1 covariate
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.326	0.332	0.630	0.450
Ga	-13.912	-1.875	0.030	0.000
Pt	-17.733	-4.074	0.000	0.000
Pa	-13.602	-5.108	0.000	0.000

FULL DATASET, NO LAGS

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4558
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(260,    44)     =  1.69e+09
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0780
                                                 Root MSE          =    6.5504

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0516415   .0076171    -6.78   0.000    -.0669928   -.0362903
L_tot_oil_~p |  -.0108466   .0152488    -0.71   0.481    -.0415785    .0198854
D_tot_oil_~p |  -.0116885   .0247658    -0.47   0.639    -.0616006    .0382236

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2100361   .2959243     0.71   0.482    -.3863601    .8064323
------------------------------------------------------------------------------
```

.

NOW WE ADD CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      316 |         14
      317 |         14
      344 |         15
      349 |         15
      368 |         16
      369 |         15
      370 |         15
      372 |         15
      373 |         15
      701 |         15
      702 |         14
      703 |         15
      705 |         15
----------------------
```

drop if hmccode == 347 | hmccode == 359 | hmccode == 704

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 32 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.641  |    2.294  |   0.989   |      0.800     |
     Ga    |  -12.629  |    4.069  |   1.000   |      0.760     |
     Pt    |  -13.677  |    2.090  |   0.982   |      0.400     |
     Pa    |  -12.379  |    2.071  |   0.981   |      0.640     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 32 series and 5 covariates

------------------------------------------------------------------+
 Statistic |    Value    |  Z-value   |  P-value   | Robust P-value |
-----------+-------------+------------+------------+----------------|
     Gt    |   -2.591    |    2.602   |   0.995    |      0.640     |
     Ga    |  -14.317    |    3.032   |   0.999    |      0.640     |
     Pt    |  -13.803    |    1.964   |   0.975    |      0.400     |
     Pa    |  -12.829    |    1.789   |   0.963    |      0.480     |
------------------------------------------------------------------+

.
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3604
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(267,    44)     =  72142.81
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1169
                                                 Root MSE          =    6.8527

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0693235    .010999    -6.30   0.000    -.0914906   -.0471564
L_tot_oil_~p |   .0270767   .0259814     1.04   0.303    -.0252854    .0794387
D_tot_oil_~p |  -.0058541   .0248688    -0.24   0.815    -.0559739    .0442657
L_LogPerCa~p |   .2193918   .5979354     0.37   0.715    -.9856679    1.424451
L_CivilWar~p |  -.4752038   1.001412    -0.47   0.637    -2.493417     1.54301
L_REGION_D~E |   .0539364   .0196231     2.75   0.009     .0143887    .0934841
L_WORLD_DE~E |   .0468661   .0706458     0.66   0.511    -.0955111    .1892433
D_LogperCa~t |   .2345974   2.279472     0.10   0.918    -4.359376    4.828571
D_Region_D~e |   .4680474   .1601852     2.92   0.005     .1452153    .7908795
D_World_De~e |  -.0234125   .3242699    -0.07   0.943    -.6769356    .6301105


. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3905842    .368573    -1.06   0.295    -1.133394     .352226
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3423
Method: Pooled OLS                               Number of groups  =        32
Group variable (i): hmccode                      F(254,    31)     =   1104.96
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1137
                                                 Root MSE          =    6.8948

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0668989   .0113962    -5.87   0.000    -.0901416   -.0436561
L_tot_oil_~p |   .0289945   .0259595     1.12   0.273    -.0239502    .0819392
D_tot_oil_~p |  -.0012881   .0247723    -0.05   0.959    -.0518116    .0492354
L_LogPerCa~p |   .1903786   .6046384     0.31   0.755     -1.04279    1.423547
L_CivilWar~p |  -.5786045      1.062    -0.54   0.590    -2.744568    1.587359
L_REGION_D~E |   .0513256   .0198904     2.58   0.015      .010759    .0918923
L_WORLD_DE~E |   .0549913    .071205     0.77   0.446    -.0902323    .2002148
D_LogperCa~t |  -.1608185   2.378034    -0.07   0.947     -5.01085    4.689213
D_Region_D~e |   .4901046   .1681736     2.91   0.007     .1471122    .8330969
D_World_De~e |  -.0725041   .3400953    -0.21   0.833    -.7661329    .6211248
        .

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.4334081   .3816086    -1.14   0.265    -1.211704    .3448878
------------------------------------------------------------------------------
```

THIS WORKSHEET DOCUMENTS THE COINTEGRATION TESTS AND THE REGRESSIONS RUN FOR A SERIES OF ROBUSTNESS CHECKS FOR TABLE 7, COLUMNS 3 and 4 OF DO NATURAL RESOURCES FUEL AUTHORITARIANISM? THESE REGRESSIONS DO NOT APPEAR IN THE PAPER, BUT ARE IN THE APPENDIX. These regressions are run using an alternative way of coding poor, very poor and rich countries (see appendix on sources and methods)

EACH OF THE COINTEGRATION TESTS, AND EACH OF THE ROBUSTNESS TESTS, IS DOCUMENTED HERE, AS IS THE ACTUAL REGRESSION ESTIMATED.

NOTE BENE:

To calculate the LRM, one must multiply by -1. Because this is a trivial calculation, this final computation was not documented in these files. To get the LRM just switch the sign on the output from the Delta Method computations, which were performed by Stata using the nlcom command. So, simply multiply the following formula by -1 to get the LRM: `nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]`

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

THE BIC STATISTIC CHOSE THE MODEL WITH ZERO LAGS OF DIFFERENCED TOTAL OIL INCOME. Therefore, those are the type of ECM Models we run below: Total Oil Income is only differenced one time.

NOTA BENE:

We always start with the Westerlund Cointegration Tests and then estimate cross-section time-series regressions after that to see what direction the cointegration relationship may have.

NOTE BENE:

Sometimes we have to truncate the dataset in order to run the Westerlund Cointegration Tests. This is because often they can only be calculated with a minimum lag length. However, we always estimate regressions on both the truncated sample and the entire dataset for comparisons sake.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

THESE TESTS USE CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      347 |         15
      359 |         16
      860 |          5
----------------------
```

drop if hmccode == 347 | hmccode == 359 | hmccode == 704

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 51 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value   | Robust P-value |
-----------+------------+-----------+------------+----------------|
     Gt    |   -3.530   |   -4.001  |   0.000    |     0.000      |
     Ga    |  -14.086   |    4.007  |   1.000    |     0.120      |
     Pt    |  -21.750   |   -1.863  |   0.031    |     0.160      |
     Pa    |  -14.722   |    0.760  |   0.776    |     0.320      |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(9)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 51 series and 5 covariates

-------------------------------------------------------------+
 Statistic |   Value    |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -3.422  |   -3.164  |   0.001   |      0.000     |
     Ga    |  -13.724  |    4.288  |   1.000   |      0.280     |
     Pt    |  -20.835  |   -0.944  |   0.173   |      0.040     |
     Pa    |  -12.663  |    2.389  |   0.992   |      0.480     |
-------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

NO LAGS OF D.TOTAL OIL INCOME

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-860     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3956
Method: Pooled OLS                               Number of groups  =        54
Group variable (i): hmccode                      F(270,    53)     =    791.83
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1333
                                                 Root MSE          =    8.3920

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0887309   .0111106    -7.99   0.000    -.1110159   -.0664459
L_tot_oil_~p |   .5264971   .2436014     2.16   0.035     .0378945      1.0151
D_tot_oil_~p |  -.7552495   .2443282    -3.09   0.003     -1.24531   -.2651891
L_LogPerCa~p |  -.2382098   .5872069    -0.41   0.687    -1.415998    .9395782
L_CivilWar~p |  -.3082803   .7163204    -0.43   0.669    -1.745037    1.128477
L_REGION_D~E |   .0289045   .0117848     2.45   0.018     .0052672    .0525417
L_WORLD_DE~E |  -.2507267   .0373641    -6.71   0.000    -.3256697   -.1757837
D_LogperCa~t |   2.824194   2.984089     0.95   0.348    -3.161131    8.809519
D_Region_D~e |   .5388151   .1102265     4.89   0.000     .3177287    .7599014
D_World_De~e |  -.0204172   .1063561    -0.19   0.848    -.2337405    .1929062

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -5.933639   2.633471    -2.25   0.028    -11.21571   -.6515649
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_2-850     (naturally coded; _Ihmccode_2 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3923
Method: Pooled OLS                               Number of groups  =        51
Group variable (i): hmccode                      F(267,    50)     =    590.49
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1320
                                                 Root MSE          =    8.3694

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0883703   .0111892    -7.90   0.000    -.1108446   -.0658961
L_tot_oil_~p |   .4946049   .2453606     2.02   0.049     .0017836    .9874262
D_tot_oil_~p |  -.6638738    .223556    -2.97   0.005    -1.112899   -.2148484
L_LogPerCa~p |  -.1826992   .5858064    -0.31   0.756    -1.359326    .9939275
L_CivilWar~p |  -.2337391   .7052948    -0.33   0.742    -1.650365    1.182887
L_REGION_D~E |   .0285146   .0118589     2.40   0.020     .0046952     .052334
L_WORLD_DE~E |  -.2519964   .0371295    -6.79   0.000    -.3265732   -.1774196
D_LogperCa~t |   2.206088   3.107969     0.71   0.481    -4.036452    8.448628
D_Region_D~e |   .5357374   .1112416     4.82   0.000     .3123019    .7591728
D_World_De~e |  -.0121203   .1060736    -0.11   0.909    -.2251753    .2009347

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -5.596956   2.658218    -2.11   0.040    -10.93614   -.2577667
------------------------------------------------------------------------------
```

VERY LOW ECONOMIC DEVELOPMENT

THESE ANALYSES USE CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      860 |          5
----------------------
```

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 15 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.820	0.820	0.794	0.400
Ga	-11.134	3.415	1.000	0.840
Pt	-11.576	-0.790	0.215	0.400
Pa	-14.132	0.665	0.747	0.400

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(7)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........

Results for H0: no cointegration
With 15 series and 5 covariates

----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.993  |    0.090  |   0.536   |      0.120     |
     Ga    |   -9.371  |    4.156  |   1.000   |      0.840     |
     Pt    |  -10.008  |    0.784  |   0.784   |      0.440     |
     Pa    |   -9.959  |    2.457  |   0.993   |      0.600     |
----------------------------------------------------------------+
```

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_101-860   (naturally coded; _Ihmccode_101 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1008
Method: Pooled OLS                               Number of groups  =        16
Group variable (i): hmccode                      F(232,    15)     =      6.26
maximum lag: 1                                   Prob > F          =    0.0001
                                                 R-squared         =    0.1643
                                                 Root MSE          =    9.3661

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1052295   .0233789    -4.50   0.000    -.1550605   -.0553985
L_tot_oil_~p |   1.371149   .6120463     2.24   0.041     .0666032    2.675695
D_tot_oil_~p |  -.5738526   .8620223    -0.67   0.516     -2.41121    1.263504
L_LogPerCa~p |   1.035002   .8106146     1.28   0.221    -.6927821    2.762786
L_CivilWar~p |  -1.321463   1.004642    -1.32   0.208    -3.462807    .8198806
L_REGION_D~E |   .0097632   .0264533     0.37   0.717    -.0466207    .0661471
L_WORLD_DE~E |  -.0973281   .0307814    -3.16   0.006    -.1629372    -.031719
D_LogperCa~t |  -3.739863   5.146389    -0.73   0.479    -14.70913    7.229406
D_Region_D~e |   .3731792   .1250526     2.98   0.009     .1066359    .6397224
D_World_De~e |  -.1441082   .1202426    -1.20   0.249    -.4003992    .1121829

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -13.03008   4.733135    -2.75   0.015    -23.11852   -2.941646
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_101-850   (naturally coded; _Ihmccode_101 omitted)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1004
Method: Pooled OLS                               Number of groups  =        15
Group variable (i): hmccode                      F(231,    14)     =      6.38
maximum lag: 1                                   Prob > F          =    0.0002
                                                 R-squared         =    0.1643
                                                 Root MSE          =    9.3815

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.1050995    .023418    -4.49   0.001    -.1553261    -.054873
L_tot_oil_~p |   1.315638   .6279908     2.09   0.055     -.031268    2.662545
D_tot_oil_~p |  -.5449975   .8741352    -0.62   0.543    -2.419831    1.329836
L_LogPerCa~p |   1.049157   .8111709     1.29   0.217    -.6906312    2.788946
L_CivilWar~p |  -1.321511   1.004434    -1.32   0.209    -3.475808    .8327862
L_REGION_D~E |   .0093455   .0265696     0.35   0.730    -.0476407    .0663317
L_WORLD_DE~E |  -.0983351   .0307529    -3.20   0.006    -.1642935   -.0323767
D_LogperCa~t |  -3.691897   5.147303    -0.72   0.485    -14.73176     7.34797
D_Region_D~e |   .3757767   .1257046     2.99   0.010     .1061672    .6453862
D_World_De~e |  -.1433537   .1204066    -1.19   0.254    -.4016002    .1148928

nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -12.51802   4.869977    -2.57   0.022    -22.96309   -2.072963
------------------------------------------------------------------------------


.
```

High Economic Development

THESE ANALYSES USE CONTROL VARIABLES

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(0) leads(1) lrwindow(8)
bootstrap(25)
With 0 lag(s), 1 lead(s) and a constant and a trend at least 21 observations are
required.
Following series do not contain sufficient observations.

----------------------
  hmccode |      Freq.
----------+-----------
      316 |         14
      317 |         14
      344 |         15
      349 |         15
      368 |         16
      369 |         15
      370 |         15
      372 |         15
      373 |         15
      701 |         15
      702 |         15
      703 |         15
      704 |         15
      705 |         15
----------------------
```

drop if hmccode == 316 | hmccode == 317 | hmccode == 344 | hmccode == 349 | hmccode == 368 | hmccode == 369 | hmccode == 370 | hmccode == 372 | hmccode == 373 | hmccode == 701 | hmccode == 702 | hmccode == 703 | hmccode == 704 | hmccode == 705

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags (0) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 26 series and 5 covariates

-----------------------------------------------------------------+
 Statistic |   Value   |  Z-value  |  P-value  | Robust P-value |
-----------+-----------+-----------+-----------+----------------|
     Gt    |   -2.541  |    2.623  |   0.996   |      0.840     |
     Ga    |  -12.003  |    4.015  |   1.000   |      0.920     |
     Pt    |  -11.979  |    2.235  |   0.987   |      0.520     |
     Pa    |  -12.156  |    1.993  |   0.977   |      0.640     |
-----------------------------------------------------------------+
```

NOW WE TRY AGAIN WITH 1 LAG

```
xtwest polity_s_interpolate TOI_INC LogPerCapGDP_interp CivilWar_Interp
REGION_DEM_DIFFUSE WORLD_DEM_DIFFUSE, constant trend lags(1) leads(1) lrwindow(8)
bootstrap(25)

Bootstrapping critical values under H0..........
Calculating Westerlund ECM panel cointegration tests..........(171 missing values
generated)


Results for H0: no cointegration
With 26 series and 5 covariates
```

Statistic	Value	Z-value	P-value	Robust P-value
Gt	-2.407	3.362	1.000	0.840
Ga	-13.077	3.420	1.000	0.680
Pt	-11.619	2.596	0.995	0.400
Pa	-12.111	2.018	0.978	0.480

RUNNING THE MODEL WITHOUT ANY COUNTRY PANELS DELETED FROM THE DATABASE AND CONTROL VARIABLES

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1)
i.hmccode         _Ihmccode_40-920    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2691
Method: Pooled OLS                               Number of groups  =        40
Group variable (i): hmccode                      F(262,    39)     =  6.78e+07
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1096
                                                 Root MSE          =    7.0522

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0687286   .0117753    -5.84   0.000    -.0925464   -.0449108
L_tot_oil_~p |  -.0066248   .0246424    -0.27   0.789    -.0564686    .0432191
D_tot_oil_~p |  -.0038078    .027757    -0.14   0.892    -.0599516     .052336
L_LogPerCa~p |   .8916748   .6477004     1.38   0.176    -.4184229    2.201773
L_CivilWar~p |   .3661218    1.42484     0.26   0.799    -2.515889    3.248133
L_REGION_D~E |   .0397023   .0245433     1.62   0.114    -.0099412    .0893458
L_WORLD_DE~E |   .1441508    .077922     1.85   0.072    -.0134613    .3017628
D_LogperCa~t |  -.7058638    3.03649    -0.23   0.817    -6.847744    5.436016
D_Region_D~e |   .1794097   .0767521     2.34   0.025      .024164    .3346554
D_World_De~e |  -.2322774   .1798233    -1.29   0.204    -.5960043    .1314496


nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0963906   .3598269     0.27   0.790    -.6314281    .8242093
------------------------------------------------------------------------------
```

RUNNING THE MODEL ON THE TRUNCATED DATASET

```
xi: xtscc D_polity_s_interp L_polity_s_interp L_tot_oil_inc_interp D_tot_oil_inc_interp
L_LogPerCapGDP_interp L_CivilWar_interp L_REGION_DEM_DIFFUSE L_WORLD_DEM_DIFFUSE
D_LogperCapGDP_int D_Region_Dem_Diffuse D_World_Dem_Diffuse i.hmccode i.year, lag(1
> )
i.hmccode         _Ihmccode_40-920    (naturally coded; _Ihmccode_40 omitted)
i.year            _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2496
Method: Pooled OLS                               Number of groups  =        26
Group variable (i): hmccode                      F(248,    25)     =   1285.72
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1040
                                                 Root MSE          =    7.1475

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_polity_s~p |  -.0655164   .0123192    -5.32   0.000    -.0908882   -.0401445
L_tot_oil_~p |  -.0038053   .0245895    -0.15   0.878    -.0544484    .0468378
D_tot_oil_~p |   .0036082   .0275839     0.13   0.897    -.0532019    .0604183
L_LogPerCa~p |   .7930394   .6568206     1.21   0.239     -.559708    2.145787
L_CivilWar~p |     .40156   1.571011     0.26   0.800    -2.833998    3.637118
L_REGION_D~E |   .0370474   .0248984     1.49   0.149    -.0142318    .0883266
L_WORLD_DE~E |   .1475206   .0787833     1.87   0.073    -.0147366    .3097778
D_LogperCa~t |  -1.541601   3.267099    -0.47   0.641    -8.270316    5.187115
D_Region_D~e |   .1794546   .0823328     2.18   0.039     .0098871    .3490221
D_World_De~e |   -.230257    .191246    -1.20   0.240    -.6241354    .1636215

. nlcom _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

       _nl_1:  _b[L_tot_oil_inc_interp]/_b[L_polity_s_interp]

------------------------------------------------------------------------------
D_polity_s~p |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0580823    .375959     0.15   0.878    -.7162198    .8323844
------------------------------------------------------------------------------
```

THIS WORKSHEET DOCUMENTS THE DIFFERENCE-IN-DIFFERENCES REGRESSIONS REPRODUCED IN TABLE 8, AS WELL AS SEVERAL ROBUSTNESS TESTS DISCUSSED IN DO NATURAL RESOURCES FUEL AUTHORITARIANISM? IT ALSO INCLUDES GMM INSTRUMENTAL VARIABLES REGRESSIONS (ONE OF WHICH APPEARS IN COLUMN 2 OF TABLE 8).

SEVERAL ROBUSTNESS TESTS, AND THE ACTUAL REGRESSION ESTIMATED, ARE DOCUMENTED HERE.

NOTE BENE:

To calculate the LRM, we used the Delta Method, which were performed by Stata using the nlcom command. NOTE: This formula differs from the ECM Regression Formula because this is an ARDL Model in First Differences and expressed algebraically as an ARDL Model. Therefore, the formula is:
nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-(_b[L_D_treatment_minus_combined])).

As opposed to the LRM for the ECM's, we actually include the -1 implicitly in the nlcom script here so there is no need to perform further calculations.

NOTE BENE:

Estonia, Latvia and Lithuania only observed since 1991, after the dissolution of the USSR, and not before the emergence of the USSR in 1917, when they were independent states. This is because the ECM co-integration tests cannot be performed on data series with gaps. Therefore, these 3 countries are only observed since 1991.

NOTA BENE:

The models in the paper, and the regressions run for robustness and in the appendix, are usually calculated using Driscoll Kraay Standard Errors (although we also check for robustness by estimating robust standard errors). This is the Stata command xtsce. For the Newey West adjustment we use 1 lag length.

The GMM IV regressions use different adjustments for non-spherical errors and those are addressed below.

NOTA BENE:

In this section we reproduce all of the "conditions" that were outlined in the Panel Cointegration Tests and ECM regressions. Moreover, each of the models was run two ways: as a static model and as an infinitely distributed dynamic model. However, Table 8 only depicts 7 regressions. Therefore, in order to distinguish between regressions actually displayed in Table 8 and regressions mentioned in the paper and/or reproduced in the appendix, we describe in parentheses in what column the regression appears in Table 8 or, if it does not appear there, we call it a "robustness regression." This is the case even if it is discussed in the paper. In other words, "robustness regression simply means that it does not appear in Table 8).

UNCONDITONAL STATIC MODEL (TABLE 8, COLUMN 1)

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9909
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(402,   162)     =2690025.05
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0220
                                                 Root MSE          =    8.1596

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0857407    .069669    -1.23   0.220    -.2233173    .0518358
D_logGDPpe~p |   1.578853    1.79434     0.88   0.380    -1.964458    5.122165
Civil_War_~h |  -.4741628   .5343159    -0.89   0.376    -1.529285    .5809593
D_REGION_D~E |  -.1269432   .0407479    -3.12   0.002    -.2074087   -.0464777
D_WORLD_DE~E |   .0069666   .0702461     0.10   0.921    -.1317496    .1456827
```

BENCHMARK: The static model without any instruments during the same time period (used to compare to Column 2 in Table 8 because of missing data in Column 2 due to lack of coverage on instruments)

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode if year
>1942 & reserves_billions != . & reserves_interp_area != . & sum_reserves_region != .,
lag(1)

i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      7087
Method: Pooled OLS                               Number of groups  =       159
Group variable (i): hmccode                      F(405,   158)     =    291.19
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0255
                                                 Root MSE          =    8.5528

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0891779   .0701177    -1.27   0.205    -.2276669     .049311
D_logGDPpe~p |   2.648342   2.351244     1.13   0.262    -1.995582    7.292266
Civil_War_~h |  -.4099212   .5698597    -0.72   0.473    -1.535447    .7156041
D_REGION_D~E |  -.1487534   .0414362    -3.59   0.000    -.2305938   -.0669131
D_WORLD_DE~E |  -.6337572   .0525598   -12.06   0.000    -.7375677   -.5299467
```

WE NEED TO KNOW IF WE CAN USE REGULAR TWO STAGE LEAST SQUARES OR INSTEAD USE GMM

```
quietly xi: ivreg D_treatment_minus_combined D_logGDPpercap D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE Civil_War_Gledistsch i.hmccode i.year (D_Total_Oil_Income =
reserves_billions reserves_interp_area sum_reserves_region) if year >1942, r
cluster(hmccode)

ivhettest, ivlev all
IV heteroskedasticity test(s) using levels of IVs only
Ho: Disturbance is homoskedastic
    Pagan-Hall general test statistic   : 389.537  Chi-sq(355) P-value = 0.1001
    Pagan-Hall test w/assumed normality : 5166.481  Chi-sq(355) P-value = 0.0000
    White/Koenker nR2 test statistic    : 406.135  Chi-sq(355) P-value = 0.0315
    Breusch-Pagan/Godfrey/Cook-Weisberg : 5803.332  Chi-sq(355) P-value = 0.0000

abar, lag(1)
Arellano-Bond test for AR(1): z =   0.29  Pr > z = 0.7696
```

USE GMM METHOD WITH ROBUST OPTION TO ADDRESS HETEROSKEDASTICITY (NO SERIAL CORRELATION DETECTED). THIS IS THE REGRESSION REPRODUCED IN TABLE 8, COLUMN 2.

```
xi: ivregress gmm D_treatment_minus_combined D_logGDPpercap D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE Civil_War_Gledistsch i.hmccode i.year (D_Total_Oil_Income =
reserves_billions reserves_interp_area sum_reserves_region) if year >1942, r
cluster(hmccode) wmatrix(robust)


Instrumental variables (GMM) regression                Number of obs =    7087
                                                       Wald chi2(225)= 6.4e+08
                                                       Prob > chi2   =  0.0000
                                                       R-squared     =  0.0008
GMM weight matrix: Robust                              Root MSE      =  8.5213

                              (Std. Err. adjusted for 159 clusters in hmccode)
------------------------------------------------------------------------------
             |               Robust
D_treatmen~d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -1.092771   .6365144    -1.72   0.086    -2.340317    .1547739
D_logGDPpe~p |   5.175953   2.990544     1.73   0.083    -.6854049    11.03731
D_REGION_D~E |  -.1501101   .0707165    -2.12   0.034    -.2887118   -.0115084
D_WORLD_DE~E |  -.6190952   .1273114    -4.86   0.000    -.8686208   -.3695695
Civil_War_~h |  -.3497395   .5664494    -0.62   0.537     -1.45996     .760481


F-test on Instruments:

 ( 1)  reserves_billions = 0
 ( 2)  reserves_interp_area = 0
 ( 3)  sum_reserves_region = 0

      F(  3,   158) =    8.53
           Prob > F =    0.0000

  First-stage regression summary statistics
  --------------------------------------------------------------------------
               |            Adjusted      Partial       Robust
      Variable |   R-sq.       R-sq.        R-sq.      F(3,158)   Prob > F
  -------------+------------------------------------------------------------
  D_Total_Oi~e |  0.0576      0.0264       0.0017       8.53023    0.0000
  --------------------------------------------------------------------------
  (F statistic adjusted for 159 clusters in hmccode)


. estat endogenous

  Test of endogeneity (orthogonality conditions)
  Ho: variables are exogenous
```

```
  GMM C statistic chi2(1) =  .667257  (p = 0.4140)

. estat overid

  Test of overidentifying restriction:

  Hansen's J chi2(2) = 1.14037 (p = 0.5654)
```

ROBUSTNESS TEST ON POST 1972 ERA (Robustness Regression not in Table 8)

```
xi: ivregress gmm D_treatment_minus_combined D_logGDPpercap D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE Civil_War_Gledistsch i.hmccode i.year (D_Total_Oil_Income =
reserves_billions reserves_interp_area sum_reserves_region) if year >1972, r
cluster(hmccode) wmatrix(robust)

Instrumental variables (GMM) regression               Number of obs =    4715
                                                      Wald chi2(195)= 1.1e+09
                                                      Prob > chi2   =  0.0000
                                                      R-squared     =  0.0265
GMM weight matrix: Robust                             Root MSE      =  8.3258

                              (Std. Err. adjusted for 159 clusters in hmccode)
------------------------------------------------------------------------------
             |               Robust
D_treatmen~d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.2650154   .7902921    -0.34   0.737    -1.813959    1.283929
D_logGDPpe~p |   2.723398   4.371293     0.62   0.533    -5.844178    11.29097
D_REGION_D~E |  -.0987805   .0859015    -1.15   0.250    -.2671444    .0695833
D_WORLD_DE~E |   .0018865   .3271194     0.01   0.995    -.6392558    .6430288
Civil_War_~h |  -1.150195   .8011517    -1.44   0.151    -2.720423    .4200337


F-test on Instruments:

( 1)  reserves_billions = 0
( 2)  reserves_interp_area = 0
( 3)  sum_reserves_region = 0

       F(  3,   158) =    8.74
            Prob > F =    0.0000

  First-stage regression summary statistics
  --------------------------------------------------------------------------
               |            Adjusted      Partial       Robust
      Variable |   R-sq.       R-sq.        R-sq.      F(3,158)   Prob > F
  -------------+------------------------------------------------------------
  D_Total_Oi~e |  0.0609      0.0199       0.0010       8.74318    0.0000
  --------------------------------------------------------------------------
  (F statistic adjusted for 159 clusters in hmccode)


estat endogenous

  Test of endogeneity (orthogonality conditions)
  Ho: variables are exogenous

  GMM C statistic chi2(1) =  .031394  (p = 0.8594)

. estat overid

  Test of overidentifying restriction:

  Hansen's J chi2(2) = .797056 (p = 0.6713)

.
```

ROBUSTNESS TEST: Post 1985 ERA (Robustness Regression not in Table 8)

```
xi: ivregress gmm D_treatment_minus_combined D_logGDPpercap D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE Civil_War_Gledistsch i.hmccode i.year (D_Total_Oil_Income =
reserves_billions reserves_interp_area sum_reserves_region) if year >1986, r
cluster(hmccode) wmatrix(robust)

Instrumental variables (GMM) regression                Number of obs =    2927
                                                       Wald chi2(181)= 6.5e+08
                                                       Prob > chi2   =  0.0000
                                                       R-squared     =  0.0294
GMM weight matrix: Robust                              Root MSE      =  8.2829

                              (Std. Err. adjusted for 159 clusters in hmccode)
------------------------------------------------------------------------------
             |               Robust
D_treatmen~d |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   2.076064   3.968519     0.52   0.601     -5.70209    9.854218
D_logGDPpe~p |   4.051847   3.854976     1.05   0.293    -3.503767    11.60746
D_REGION_D~E |   -.083048   .0976301    -0.85   0.395    -.2743996    .1083035
D_WORLD_DE~E |   .0402208   .2746869     0.15   0.884    -.4981557    .5785974
Civil_War_~h |  -1.020076   .8555461    -1.19   0.233    -2.696916    .6567635


F-test on Instruments:

 ( 1)  reserves_billions = 0
 ( 2)  reserves_interp_area = 0
 ( 3)  sum_reserves_region = 0

       F(  3,   158) =    0.56
            Prob > F =    0.6428

  First-stage regression summary statistics
  --------------------------------------------------------------------------
               |            Adjusted      Partial       Robust
      Variable |   R-sq.       R-sq.        R-sq.      F(3,158)   Prob > F
  -------------+------------------------------------------------------------
  D_Total_Oi~e |  0.1491      0.0923       0.0011       .559092    0.6428
  --------------------------------------------------------------------------
  (F statistic adjusted for 159 clusters in hmccode)


. estat endogenous

  Test of endogeneity (orthogonality conditions)
  Ho: variables are exogenous

  GMM C statistic chi2(1) =  .185401  (p = 0.6668)

. estat overid

  Test of overidentifying restriction:

  Hansen's J chi2(2) = .981581 (p = 0.6121)

.
```

DYNAMIC MODEL (NO LONGER IN IV FRAMEWORK; THIS IS THE REGRESSION IN TABLE 8, COLUMN 3)

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      9783
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(404,   162)     =  9.00e+07
maximum lag: 4                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0243
                                                 Root MSE          =    8.1623

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0152873   .0204837     0.75   0.457    -.0251621    .0557367
D_Total_Oi~e |  -.0591937   .0520018    -1.14   0.257    -.1618824     .043495
L_D_Total_~e |   .2843787   .0753104     3.78   0.000     .1356619    .4330954
D_logGDPpe~p |    1.06415   1.693696     0.63   0.531    -2.280419    4.408718
Civil_War_~h |  -.5285935   .4487964    -1.18   0.241    -1.414839    .3576519
D_REGION_D~E |  -.1265935    .046282    -2.74   0.007    -.2179874   -.0351996
D_WORLD_DE~E |   .0177055   .0750131     0.24   0.814    -.1304241    .1658351

nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2286809    .065446     3.49   0.001     .0994436    .3579182
------------------------------------------------------------------------------
```

STATIC MODEL POST 1972 (ROBUSTNESS TEST NOT IN TABLE 8)

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4772
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(203,   162)     =     20.14
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0262
                                                 Root MSE          =    8.4228

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0741953   .0732494    -1.01   0.313    -.2188421    .0704516
D_logGDPpe~p |   1.331108   2.591598     0.51   0.608    -3.786561    6.448778
Civil_War_~h |  -1.038656   .7328297    -1.42   0.158    -2.485787    .4084741
D_REGION_D~E |  -.0647423   .0499492    -1.30   0.197    -.1633779    .0338932
D_WORLD_DE~E |   .0081617   .0522498     0.16   0.876    -.0950167    .1113402
```

DYNAMIC MODEL POST 1972 (ROBUSTNESS TEST NOT IN TABLE).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year            _Iyear_1973-2006    (naturally coded; _Iyear_1973 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      4603
Method: Pooled OLS                               Number of groups  =       163
Group variable (i): hmccode                      F(205,   162)     =     19.31
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0305
                                                 Root MSE          =    8.4151

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0048861   .0280376     0.17   0.862    -.0504802    .0602525
D_Total_Oi~e |  -.0860493    .065565    -1.31   0.191    -.2155216     .043423
L_D_Total_~e |   .2885527   .0844569     3.42   0.001     .1217744     .455331
D_logGDPpe~p |   .3989221   2.547568     0.16   0.876    -4.631801    5.429645
Civil_War_~h |  -1.157225     .56537    -2.05   0.042    -2.273671   -.0407803
D_REGION_D~E |  -.0649337   .0525427    -1.24   0.218    -.1686906    .0388232
D_WORLD_DE~E |  -.0139921   .0544969    -0.26   0.798    -.1216081    .0936239


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2034977   .1096054     1.86   0.065    -.0129419    .4199373
------------------------------------------------------------------------------
```

STATIC Threshold Model (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode if
Total_Oil_Income_PC_interp >=.338228, lag(1)
i.year           _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       945
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(402,    41)     = 371136.62
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2513
                                                 Root MSE          =    7.0499

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0771959   .0683187    -1.13   0.265    -.2151683    .0607764
D_logGDPpe~p |  -4.925516   4.417241    -1.12   0.271    -13.84632    3.995283
Civil_War_~h |  -2.764638   2.591247    -1.07   0.292    -7.997767    2.468491
D_REGION_D~E |  -.6339132   .1339697    -4.73   0.000    -.9044706   -.3633559
D_WORLD_DE~E |   -.523705   .0769766    -6.80   0.000    -.6791624   -.3682477
```

Dynamic Threshold Model (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode if L.Total_Oil_Income_PC_interp >=.338228
i.year           _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       910
Method: Pooled OLS                               Number of groups  =        42
Group variable (i): hmccode                      F(404,    41)     =  14999.41
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.2707
                                                 Root MSE          =    7.1051

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0199736   .0449721    -0.44   0.659    -.1107966    .0708494
D_Total_Oi~e |  -.1380584   .0758953    -1.82   0.076    -.2913321    .0152154
L_D_Total_~e |   .1861237   .0396858     4.69   0.000     .1059766    .2662708
D_logGDPpe~p |  -5.705832   3.702124    -1.54   0.131    -13.18242     1.77076
Civil_War_~h |  -4.242903   2.469769    -1.72   0.093    -9.230704    .7448971
D_REGION_D~E |  -.6060807   .1354481    -4.47   0.000    -.8796238   -.3325377
D_WORLD_DE~E |  -.5239477   .0678974    -7.72   0.000    -.6610693   -.3868261

nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0471241    .061384     0.77   0.447    -.0768434    .1710916
```

Threshold Model with oil reliant country years above the oil producers' average, STATIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode if
Total_Oil_Income_PC_interp >=.9708862, lag(1)
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       528
Method: Pooled OLS                               Number of groups  =        28
Group variable (i): hmccode                      F(402,    27)     =    547.87
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.5794
                                                 Root MSE          =    4.3554

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0771364   .0510943    -1.51   0.143    -.1819734    .0277005
D_logGDPpe~p |  -3.379698   2.161134    -1.56   0.129    -7.813979    1.054584
Civil_War_~h |   3.949421   4.909079     0.80   0.428    -6.123177    14.02202
D_REGION_D~E |  -.8643131   .2401711    -3.60   0.001    -1.357104   -.3715227
D_WORLD_DE~E |  -2.890801   .2967251    -9.74   0.000    -3.499631   -2.281971
```

Threshold Model with oil reliant country years above the oil producers' average, DYNAMIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode if L.Total_Oil_Income_PC_interp >=.9708862
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       505
Method: Pooled OLS                               Number of groups  =        27
Group variable (i): hmccode                      F(404,    26)     =   5285.53
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.5645
                                                 Root MSE          =    4.4312

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0437593   .0574422    -0.76   0.453    -.1618334    .0743147
D_Total_Oi~e |  -.0881746    .049548    -1.78   0.087     -.190022    .0136727
L_D_Total_~e |   .1208016   .0216479     5.58   0.000     .0763037    .1652996
D_logGDPpe~p |   -3.27285   2.953519    -1.11   0.278    -9.343896    2.798196
Civil_War_~h |   3.040622    3.53622     0.86   0.398    -4.228182    10.30943
D_REGION_D~E |  -.8311794   .2238429    -3.71   0.001    -1.291295   -.3710638
D_WORLD_DE~E |    .101724   .1624677     0.63   0.537    -.2322331    .4356811


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0312591   .0555288     0.56   0.578    -.0828819    .1454002
```

Threshold Model with oil reliant country years above the oil producers' average, STATIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode if
Total_Oil_Income_PC_interp >=2.954299, lag(1)
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       296
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(402,    13)     =      7.81
maximum lag: 1                                   Prob > F          =    0.0001
                                                 R-squared         =    0.8246
                                                 Root MSE          =    2.4209

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0086617   .0321242    -0.27   0.792    -.0780618    .0607385
D_logGDPpe~p |  -1.135361   2.048213    -0.55   0.589    -5.560257    3.289535
Civil_War_~h |   5.006536   1.614904     3.10   0.008     1.517748    8.495325
D_REGION_D~E |  -1.552664   .2971692    -5.22   0.000    -2.194659   -.9106689
D_WORLD_DE~E |  -.7562917   .3886576    -1.95   0.074    -1.595935     .083352
```

Threshold Model with oil reliant country years above the oil producers' average, DYNAMIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode if L.Total_Oil_Income_PC_interp >=2.954299
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
i.hmccode         _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       285
Method: Pooled OLS                               Number of groups  =        14
Group variable (i): hmccode                      F(404,    13)     =     51.26
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.8549
                                                 Root MSE          =    2.2288

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0663559   .0303075     2.19   0.047     .0008805    .1318312
D_Total_Oi~e |   .0005409   .0295579     0.02   0.986     -.063315    .0643968
L_D_Total_~e |   .0963816   .0530122     1.82   0.092    -.0181443    .2109074
D_logGDPpe~p |  -2.230413    2.32971    -0.96   0.356    -7.263446    2.802619
Civil_War_~h |  (dropped)
D_REGION_D~E |  -1.521764   .3036486    -5.01   0.000    -2.177757   -.8657708
D_WORLD_DE~E |  -1.130872   .4181685    -2.70   0.018     -2.03427   -.2274738


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1038109   .0601513     1.73   0.108    -.0261381      .23376
------------------------------------------------------------------------------
```

SUBSAHARAN AFRICA STATIC REGRESSIONS (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)
i.hmccode        _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1892
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(208,    44)     =   1969.61
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0505
                                                 Root MSE          =    9.6489

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.2071251   .2855447    -0.73   0.472    -.7826027    .3683525
D_logGDPpe~p |   6.555591   3.818764     1.72   0.093    -1.140622     14.2518
Civil_War_~h |  -1.035824   .8518749    -1.22   0.230    -2.752665    .6810168
D_REGION_D~E |  -.8356059   .0019882  -420.29   0.000    -.8396128   -.831599
D_WORLD_DE~E |  -1.617138   .0052764  -306.49   0.000    -1.627772   -1.606504
```

DYNAMIC SUBSAHARAN REGRESSIONS (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1847-2006    (naturally coded; _Iyear_1847 omitted)
i.hmccode        _Ihmccode_404-625   (naturally coded; _Ihmccode_404 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1849
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(210,    44)     =  20401.09
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0517
                                                 Root MSE          =    9.6497

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0263788   .0317088     0.83   0.410    -.0375262    .0902837
D_Total_Oi~e |  -.3291071   .2767205    -1.19   0.241    -.8868007    .2285865
L_D_Total_~e |  -.1299943     .22085    -0.59   0.559    -.5750882    .3150997
D_logGDPpe~p |   6.647174   3.395551     1.96   0.057    -.1961087    13.49046
Civil_War_~h |  -1.027922   .7256539    -1.42   0.164    -2.490381    .4345376
D_REGION_D~E |  -.8356536   .0017678  -472.70   0.000    -.8392164   -.8320907
D_WORLD_DE~E |  -1.617012   .0046916  -344.66   0.000    -1.626467   -1.607556


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -.47154   .4418183    -1.07   0.292    -1.361966    .4188862
```

LATIN AMERICAN REGRESSIONS STATIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)
i.hmccode        _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1903
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(221,    19)     =      1.44
maximum lag: 1                                   Prob > F          =    0.1768
                                                 R-squared         =    0.0553
                                                 Root MSE          =    9.6960

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   .1557198   .6216649     0.25   0.805     -1.14544    1.456879
D_logGDPpe~p |   2.682449   4.227609     0.63   0.533    -6.166039    11.53094
Civil_War_~h |   .1387815   1.317796     0.11   0.917    -2.619397     2.89696
D_REGION_D~E |   .6687276   .4135618     1.62   0.122    -.1968672    1.534323
D_WORLD_DE~E |  -.2642401   .0871991    -3.03   0.007    -.4467499   -.0817302
```

LATIN AMERICAN DYNAMIC (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1811-2006    (naturally coded; _Iyear_1811 omitted)
i.hmccode        _Ihmccode_40-165    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1896
Method: Pooled OLS                               Number of groups  =        20
Group variable (i): hmccode                      F(223,    19)     =      3.03
maximum lag: 4                                   Prob > F          =    0.0032
                                                 R-squared         =    0.0535
                                                 Root MSE          =    9.7050

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0054279   .0313504    -0.17   0.864     -.071045    .0601892
D_Total_Oi~e |   .1529587   .7412925     0.21   0.839    -1.398584    1.704502
L_D_Total_~e |   .1586691   .4996854     0.32   0.754    -.8871845    1.204523
D_logGDPpe~p |    2.51013   4.440571     0.57   0.579    -6.784091    11.80435
Civil_War_~h |   .0703363   1.320336     0.05   0.958    -2.693159    2.833832
D_REGION_D~E |   .6669846   .4615466     1.45   0.165    -.2990435    1.633013
D_WORLD_DE~E |  -.2599123   .0843146    -3.08   0.006    -.4363849   -.0834398


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3099455   1.025476     0.30   0.766      -1.8364    2.456291
------------------------------------------------------------------------------
```

MENA STATIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       905
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(228,     17)    =      8.15
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3326
                                                 Root MSE          =    7.1369

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0715637   .0493422    -1.45   0.165    -.1756667    .0325392
D_logGDPpe~p |   .0112727   3.800319     0.00   0.998    -8.006699    8.029244
Civil_War_~h |  -.3185198   1.631492    -0.20   0.848    -3.760668    3.123628
D_REGION_D~E |   7.149522   .1608034    44.46   0.000     6.810257    7.488788
D_WORLD_DE~E |   .0000757   .0255212     0.00   0.998    -.0537692    .0539207
```

MENA DYNAMIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_600-698   (naturally coded; _Ihmccode_600 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       893
Method: Pooled OLS                               Number of groups  =        18
Group variable (i): hmccode                      F(230,     17)    =     29.13
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.3349
                                                 Root MSE          =    7.1735

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0261331   .0409027    -0.64   0.531    -.1124302     .060164
D_Total_Oi~e |  -.0666952   .0471563    -1.41   0.175    -.1661864    .0327959
L_D_Total_~e |   .1057906   .0227511     4.65   0.000       .05779    .1537912
D_logGDPpe~p |  -.6842048   3.962323    -0.17   0.865    -9.043975    7.675565
Civil_War_~h |  -.4003004   1.580311    -0.25   0.803    -3.734466    2.933865
D_REGION_D~E |   7.213106   .1746344    41.30   0.000      6.84466    7.581552
D_WORLD_DE~E |   -.033405   .0517541    -0.65   0.527    -.1425965    .0757865


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0380997   .0542104     0.70   0.492    -.0762741    .1524736
```

CENTRAL ASIA AND EASTERN EUROPE STATIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       858
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(241,    29)     =    276.15
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1602
                                                 Root MSE          =    6.8281

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   .1376939   2.293533     0.06   0.953    -4.553107    4.828495
D_logGDPpe~p |   6.851465   4.417217     1.55   0.132    -2.182757    15.88569
Civil_War_~h |   1.207299   1.494312     0.81   0.426    -1.848912     4.26351
D_REGION_D~E |    1.08702   .3801548     2.86   0.008     .3095156    1.864523
D_WORLD_DE~E |  -.5094557   .0623627    -8.17   0.000    -.6370018   -.3819096
```

CENTRAL ASIA AND EASTERN EUROPE DYNAMIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_290-712   (naturally coded; _Ihmccode_290 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       829
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F(243,    29)     =    365.18
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1663
                                                 Root MSE          =    6.8828

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0269833   .0662383    -0.41   0.687    -.1624559    .1084893
D_Total_Oi~e |  -.7074164   2.661952    -0.27   0.792     -6.15172    4.736887
L_D_Total_~e |   4.772842   3.780949     1.26   0.217    -2.960066    12.50575
D_logGDPpe~p |   .2015154   3.149174     0.06   0.949    -6.239268    6.642299
Civil_War_~h |   1.966242   1.311141     1.50   0.145    -.7153429    4.647828
D_REGION_D~E |   1.060142    .287073     3.69   0.001     .4730121    1.647273
D_WORLD_DE~E |  -.4085715   .3143019    -1.30   0.204    -1.051391    .2342481


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   3.958609   2.683771     1.48   0.151     -1.53032    9.447538
```

SOUTHEAST ASIA STATIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       463
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(220,     9)     =     62.26
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0843
                                                 Root MSE          =    9.5110

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   .7631779   3.589265     0.21   0.836    -7.356303    8.882659
D_logGDPpe~p |  -11.40146   6.793927    -1.68   0.128    -26.77039    3.967467
Civil_War_~h |    -.02166   1.682705    -0.01   0.990    -3.828202    3.784882
D_REGION_D~E |  -.9129719   .0758423   -12.04   0.000    -1.084539   -.7414048
D_WORLD_DE~E |  -.4662822   .4304345    -1.08   0.307    -1.439993    .5074284
```

SOUTHEAST ASIA DYNAMIC MODEL (Robustness Regression not in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year            _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode         _Ihmccode_775-860   (naturally coded; _Ihmccode_775 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       453
Method: Pooled OLS                               Number of groups  =        10
Group variable (i): hmccode                      F(222,     9)     =    105.01
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0897
                                                 Root MSE          =    9.6066

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0262956   .0757052    -0.35   0.736    -.1975527    .1449615
D_Total_Oi~e |  -.0451747   5.243352    -0.01   0.993    -11.90646    11.81611
L_D_Total_~e |   9.298683   3.057577     3.04   0.014     2.381963     16.2154
D_logGDPpe~p |  -9.654029   6.330976    -1.52   0.162    -23.97569    4.667634
Civil_War_~h |    .009817   1.649357     0.01   0.995    -3.721287    3.740921
D_REGION_D~E |  -.9174421   .0750784   -12.22   0.000    -1.087281    -.747603
D_WORLD_DE~E |  -.4674283   .4635336    -1.01   0.340    -1.516014    .5811575


. nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   9.016416   6.484528     1.39   0.198    -5.652607    23.68544
------------------------------------------------------------------------------
```

LOW INEQUALITY STATIC MODEL (Robustness Regression not In Table 8)

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2632
Method: Pooled OLS                               Number of groups  =        66
Group variable (i): hmccode                      F(117,    65)     =    135.26
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0507
                                                 Root MSE          =    6.5567

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0880688   .0793075    -1.11   0.271    -.2464569    .0703193
D_logGDPpe~p |   1.659192   2.342604     0.71   0.481    -3.019311    6.337695
Civil_War_~h |  -1.230147   1.279853    -0.96   0.340     -3.78619    1.325897
D_REGION_D~E |  -.1247517   .1181316    -1.06   0.295    -.3606768    .1111735
D_WORLD_DE~E |  -.0422445   .0942808    -0.45   0.656    -.2305362    .1460472
```

LOW INEQUALITY DYNAMIC MODEL (This is COLUMN 4, TABLE 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_2-950     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2562
Method: Pooled OLS                               Number of groups  =        66
Group variable (i): hmccode                      F(119,    65)     =   1905.41
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0624
                                                 Root MSE          =    6.5476

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0919229   .0332274     2.77   0.007     .0255631    .1582826
D_Total_Oi~e |  -.0350218   .0633765    -0.55   0.582    -.1615934    .0915499
L_D_Total_~e |   .2489465   .0621622     4.00   0.000     .1248001    .3730929
D_logGDPpe~p |   .8683702   2.366011     0.37   0.715     -3.85688     5.59362
Civil_War_~h |  -1.244019   1.102542    -1.13   0.263    -3.445947    .9579088
D_REGION_D~E |  -.1097073   .1297128    -0.85   0.401    -.3687616    .1493471
D_WORLD_DE~E |  -.0531609   .0977268    -0.54   0.588    -.2483349     .142013
```

```
nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2355799   .0843974     2.79   0.007     .0670267    .4041331
------------------------------------------------------------------------------
```

HIGH INEQUALITY STATIC MODEL (Robustness Regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2753
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(117,    66)     =    571.72
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0204
                                                 Root MSE          =   10.2340

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0707173   .0597896    -1.18   0.241     -.190091    .0486564
D_logGDPpe~p |   2.552733    4.56316     0.56   0.578    -6.557909    11.66338
Civil_War_~h |  -.0795022   .9344707    -0.09   0.932    -1.945233    1.786229
D_REGION_D~E |  -.0986944   .0696972    -1.42   0.161    -.2378493    .0404605
D_WORLD_DE~E |  -.4956715   .0754926    -6.57   0.000    -.6463974   -.3449457
```

HIGH INEQUALITY DYNAMIC MODEL (This is COLUMN 5, TABLE 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_40-850    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2682
Method: Pooled OLS                               Number of groups  =        67
Group variable (i): hmccode                      F(119,    66)     =    138.84
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0245
                                                 Root MSE          =   10.2350

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0095246   .0242087    -0.39   0.695    -.0578589    .0388096
D_Total_Oi~e |  -.0681312   .0422207    -1.61   0.111    -.1524275     .016165
L_D_Total_~e |   .3279271    .100417     3.27   0.002     .1274382    .5284161
D_logGDPpe~p |   1.930713   4.876154     0.40   0.693    -7.804842    11.66627
Civil_War_~h |  -.2290586   .9378445    -0.24   0.808    -2.101526    1.643408
D_REGION_D~E |  -.1198205    .065158    -1.84   0.070    -.2499126    .0102715
D_WORLD_DE~E |  -.5053435   .0756543    -6.68   0.000    -.6563922   -.3542948


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2573448   .0914821     2.81   0.006     .0746949    .4399947
------------------------------------------------------------------------------
```

EXTREME INEQUALITY STATIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1235
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 80,    29)     =      6.52
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0383
                                                 Root MSE          =   11.0077

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   7.952046   13.71921     0.58   0.567     -20.1069    36.01099
D_logGDPpe~p |  -2.586992    6.10139    -0.42   0.675    -15.06574    9.891752
Civil_War_~h |  -.8701567   1.236826    -0.70   0.487    -3.399749    1.659436
D_REGION_D~E |   .0581461   .0954543     0.61   0.547    -.1370799    .2533721
D_WORLD_DE~E |   -.610532   .0975854    -6.26   0.000    -.8101165   -.4109475
```

EXTREME INEQUALITY DYNAMIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_90-850    (naturally coded; _Ihmccode_90 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1205
Method: Pooled OLS                               Number of groups  =        30
Group variable (i): hmccode                      F( 82,    29)     =     77.93
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0419
                                                 Root MSE          =   11.1008

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |  -.0139371   .0341275    -0.41   0.686    -.0837356    .0558614
D_Total_Oi~e |   8.153829   11.11646     0.73   0.469    -14.58189    30.88954
L_D_Total_~e |   1.168709   5.652681     0.21   0.838    -10.39232    12.72974
D_logGDPpe~p |  -3.098567   6.650317    -0.47   0.645    -16.69999    10.50286
Civil_War_~h |  -1.120908   1.326022    -0.85   0.405    -3.832927    1.591112
D_REGION_D~E |   .0661056    .099862     0.66   0.513    -.1381352    .2703464
D_WORLD_DE~E |  -.6888798    .118612    -5.81   0.000    -.9314686    -.446291


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   9.194395   14.42447     0.64   0.529    -20.30695    38.69574
------------------------------------------------------------------------------
```

EQUALITY STATIC UTIP (This is a robustness Regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2199
Method: Pooled OLS                               Number of groups  =        58
Group variable (i): hmccode                      F(108,    57)     =   3475.33
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0435
                                                 Root MSE          =    6.1198

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.5574145   .4229463    -1.32   0.193     -1.40435    .2895208
D_logGDPpe~p |  -6.228599   4.613528    -1.35   0.182    -15.46703    3.009833
Civil_War_~h |   1.455401   1.646063     0.88   0.380    -1.840783    4.751584
D_REGION_D~E |  -.0417475   .0429397    -0.97   0.335    -.1277328    .0442378
D_WORLD_DE~E |  -.3824809   .0552214    -6.93   0.000    -.4930597    -.271902
```

EQUALITY DYNAMIC UTIP (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2132
Method: Pooled OLS                               Number of groups  =        58
Group variable (i): hmccode                      F(110,    57)     =    269.31
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0495
                                                 Root MSE          =    5.9982

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0114394   .0751621     0.15   0.880      -.13907    .1619488
D_Total_Oi~e |   -.563236   .3786545    -1.49   0.142    -1.321479    .1950066
L_D_Total_~e |   1.211488   .4651082     2.60   0.012     .2801248    2.142851
D_logGDPpe~p |  -9.233618   4.700623    -1.96   0.054    -18.64645    .1792175
Civil_War_~h |   1.797361   1.574626     1.14   0.258    -1.355773    4.950494
D_REGION_D~E |  -.0473175   .0407632    -1.16   0.251    -.1289445    .0343095
D_WORLD_DE~E |  -.3174731   .0536814    -5.91   0.000    -.4249681    -.209978


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .6557534    .364159     1.80   0.077    -.0734624    1.384969
------------------------------------------------------------------------------
```

HIGH INEQUALITY UTIP STATIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_41-950    (naturally coded; _Ihmccode_41 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3323
Method: Pooled OLS                               Number of groups  =        79
Group variable (i): hmccode                      F(132,    78)     =     19.04
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0223
                                                 Root MSE          =    9.9882

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0933006   .0660739    -1.41   0.162    -.2248436    .0382425
D_logGDPpe~p |   5.525653   2.356223     2.35   0.022     .8347738    10.21653
Civil_War_~h |  -.7641549   .7278726    -1.05   0.297    -2.213238    .6849281
D_REGION_D~E |  -.0567613   .0846125    -0.67   0.504    -.2252119    .1116893
D_WORLD_DE~E |  -.3173131   .0785113    -4.04   0.000     -.473617   -.1610091
```

HIGH INEQUALITY UTIP DYNAMIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_41-950    (naturally coded; _Ihmccode_41 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3244
Method: Pooled OLS                               Number of groups  =        79
Group variable (i): hmccode                      F(134,    78)     =     72.15
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0263
                                                 Root MSE          =   10.0372

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0049007   .0212353     0.23   0.818    -.0373756     .047177
D_Total_Oi~e |  -.0713429   .0448196    -1.59   0.115    -.1605718    .0178861
L_D_Total_~e |   .2772211   .0836588     3.31   0.001     .1106693    .4437729
D_logGDPpe~p |   5.518152   2.305477     2.39   0.019     .9283002      10.108
Civil_War_~h |  -.9000232   .7021996    -1.28   0.204    -2.297995    .4979488
D_REGION_D~E |   -.057487   .0984291    -0.58   0.561    -.2534443    .1384704
D_WORLD_DE~E |  -.3692478   .0907336    -4.07   0.000    -.5498844   -.1886112


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .2068922   .0802982     2.58   0.012     .0470307    .3667537
```

HIGH INEQUALITY UTIP STATIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_371-712   (naturally coded; _Ihmccode_371 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       635
Method: Pooled OLS                               Number of groups  =        16
Group variable (i): hmccode                      F( 66,    15)     =      2.34
maximum lag: 1                                   Prob > F          =    0.0343
                                                 R-squared         =    0.1029
                                                 Root MSE          =    8.9432

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |     -.0845   .0738553    -1.14   0.271    -.2419189    .0729188
D_logGDPpe~p |   .9786467   3.477614     0.28   0.782    -6.433712    8.391005
Civil_War_~h |  -2.523559   2.068425    -1.22   0.241    -6.932303    1.885184
D_REGION_D~E |  -.4675378   .3433795    -1.36   0.193    -1.199434    .2643582
D_WORLD_DE~E |   1.557948   .2336076     6.67   0.000     1.060025    2.055871
```

HIGH INEQUALITY UTIP DYNAMIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1960-2006    (naturally coded; _Iyear_1960 omitted)
i.hmccode        _Ihmccode_371-712   (naturally coded; _Ihmccode_371 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =       617
Method: Pooled OLS                               Number of groups  =        16
Group variable (i): hmccode                      F( 68,    15)     =     51.50
maximum lag: 3                                   Prob > F          =    0.0000
                                                 R-squared         =    0.1193
                                                 Root MSE          =    8.8597

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0083273    .047062     0.18   0.862     -.091983    .1086376
D_Total_Oi~e |  -.0682298   .0686358    -0.99   0.336    -.2145236    .0780641
L_D_Total_~e |   .2016003   .0532217     3.79   0.002     .0881609    .3150397
D_logGDPpe~p |  -.3997583   3.110829    -0.13   0.899    -7.030334    6.230817
Civil_War_~h |    -2.6732   1.532492    -1.74   0.102     -5.93963      .59323
D_REGION_D~E |  -.4554081   .3639483    -1.25   0.230    -1.231146    .3203294
D_WORLD_DE~E |   1.715994   .2540048     6.76   0.000     1.174596    2.257392


. nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .1344905    .094336     1.43   0.174     -.066582     .335563
```

POOR COUNTRIES STATIC MODEL (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2893
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(260,    48)     =    177.32
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0492
                                                 Root MSE          =    9.1403

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.1125205   .6322574    -0.18   0.859    -1.383759    1.158718
D_logGDPpe~p |   .3057567   3.246139     0.09   0.925    -6.221044    6.832557
Civil_War_~h |  -1.145665    1.00774    -1.14   0.261    -3.171862    .8805328
D_REGION_D~E |  -.1814234   .0562622    -3.22   0.002    -.2945462   -.0683005
D_WORLD_DE~E |  -.4104878   .0992403    -4.14   0.000    -.6100239   -.2109518
```

DYNAMIC MODEL (This is Column 6 of Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_40-910    (naturally coded; _Ihmccode_40 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      2854
Method: Pooled OLS                               Number of groups  =        49
Group variable (i): hmccode                      F(262,    48)     =    763.15
maximum lag: 4                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0504
                                                 Root MSE          =    9.1430

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0210568   .0263808     0.80   0.429    -.0319854    .0740991
D_Total_Oi~e |  -.2527518   .6674378    -0.38   0.707    -1.594725    1.089222
L_D_Total_~e |   .3475816   .4320948     0.80   0.425    -.5212033    1.216367
D_logGDPpe~p |  -.4053016   3.190759    -0.13   0.899    -6.820752    6.010149
Civil_War_~h |  -1.301289   .9200866    -1.41   0.164    -3.151247    .5486691
D_REGION_D~E |  -.1897693   .0749216    -2.53   0.015    -.3404093   -.0391293
D_WORLD_DE~E |  -.3954623   .1027422    -3.85   0.000    -.6020393   -.1888854


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .0968695   .8234857     0.12   0.907     -1.55886    1.752599
```

VERY POOR COUNTRIES STATIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1654
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(234,    23)     =     20.25
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0769
                                                 Root MSE          =    9.5444

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |   .6558199   .9920731     0.66   0.515     -1.39644    2.708079
D_logGDPpe~p |   1.023978    4.87252     0.21   0.835    -9.055597    11.10355
Civil_War_~h |  -1.104766   1.020458    -1.08   0.290    -3.215744    1.006212
D_REGION_D~E |   -.114387   .1094774    -1.04   0.307    -.3408581    .1120842
D_WORLD_DE~E |  -.2211304   .0888397    -2.49   0.020    -.4049093   -.0373515
```

DYNAMIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1800-2006    (naturally coded; _Iyear_1800 omitted)
i.hmccode        _Ihmccode_70-860    (naturally coded; _Ihmccode_70 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      1638
Method: Pooled OLS                               Number of groups  =        24
Group variable (i): hmccode                      F(236,    23)     =     58.00
maximum lag: 4                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0793
                                                 Root MSE          =    9.5548

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0403443   .0329373     1.22   0.233    -.0277917    .1084803
D_Total_Oi~e |    .664243    1.07609     0.62   0.543    -1.561819    2.890305
L_D_Total_~e |   .5184272   .7461868     0.69   0.494    -1.025178    2.062032
D_logGDPpe~p |   .5437293    5.40817     0.10   0.921    -10.64392    11.73138
Civil_War_~h |  -1.326782   .9648789    -1.38   0.182    -3.322786    .6692216
D_REGION_D~E |   -.136122   .1095159    -1.24   0.226    -.3626729    .0904288
D_WORLD_DE~E |  -.2164932   .0922538    -2.35   0.028    -.4073347   -.0256518


nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    1.23239   1.733302     0.71   0.484    -2.353219    4.817999
```

WEALTHY COUNTRIES STATIC (This is a robustness regression not shown in Table 8).

```
xi: xtscc D_treatment_minus_combined D_Total_Oil_Income D_logGDPpercap
Civil_War_Gledistsch D_REGION_DEM_DIFFUSE D_WORLD_DEM_DIFFUSE i.year i.hmccode, lag(1)
i.year           _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)
i.hmccode        _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3539
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(261,    44)     =     11.54
maximum lag: 1                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0469
                                                 Root MSE          =    6.8983

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
D_Total_Oi~e |  -.0269742   .0701145    -0.38   0.702    -.1682806    .1143323
D_logGDPpe~p |   .4857747   2.652533     0.18   0.856    -4.860055    5.831604
Civil_War_~h |  -1.902343   1.503264    -1.27   0.212    -4.931971    1.127286
D_REGION_D~E |  -.1605197   .1234537    -1.30   0.200    -.4093243    .0882849
D_WORLD_DE~E |   .0208602   .2693384     0.08   0.939    -.5219558    .5636761
```

DYNAMIC MODEL (This is Column 7 of Table 8)

```
xi: xtscc D_treatment_minus_combined  L_D_treatment_minus_combined D_Total_Oil_Income
L_D_Total_Oil_Income D_logGDPpercap Civil_War_Gledistsch D_REGION_DEM_DIFFUSE
D_WORLD_DEM_DIFFUSE i.year i.hmccode
i.year           _Iyear_1797-2006    (naturally coded; _Iyear_1797 omitted)
i.hmccode        _Ihmccode_2-920     (naturally coded; _Ihmccode_2 omitted)

Regression with Driscoll-Kraay standard errors   Number of obs     =      3509
Method: Pooled OLS                               Number of groups  =        45
Group variable (i): hmccode                      F(263,    44)     =    811.06
maximum lag: 4                                   Prob > F          =    0.0000
                                                 R-squared         =    0.0527
                                                 Root MSE          =    6.8969

------------------------------------------------------------------------------
             |             Drisc/Kraay
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_D_treatm~d |   .0725542   .0218447     3.32   0.002      .028529    .1165794
D_Total_Oi~e |   .0243566   .0431063     0.57   0.575    -.0625185    .1112316
L_D_Total_~e |   .2747042   .1090973     2.52   0.016      .054833    .4945755
D_logGDPpe~p |   .1360705   2.656761     0.05   0.959     -5.21828    5.490421
Civil_War_~h |  -1.775073    1.48992    -1.19   0.240    -4.777809    1.227664
D_REGION_D~E |  -.1493656   .1289969    -1.16   0.253    -.4093417    .1106105
D_WORLD_DE~E |  -.0178578   .2815445    -0.06   0.950    -.5852734    .5495579

. nlcom(_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

       _nl_1:  (_b[D_Total_Oil_Income]+_b[L_D_Total_Oil_Income])/(1-
(_b[L_D_treatment_minus_combined]))

------------------------------------------------------------------------------
D_treatmen~d |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .3224564    .101949     3.16   0.003     .1169916    .5279211
------------------------------------------------------------------------------
```

THIS WORKSHEET DOCUMENTS THE CONDITIONAL LOGIT FIXED EFFECTS DYNAMIC REGRESSIONS TESTS FOR THE REGRESSION TABLE APPEARING IN THE ONLINE APPENDIX.

NOTE BENE:

To calculate the effect of the variables on the odds of a transition to democracy, we used the Delta Method by using Stata's nlcom command. We did not, however, multiply by -1 in this document. Because this is a trivial calculation, this final computation was not documented in these files. To get the correct sign, just switch the sign on the output from the Delta Method computations, So, simply multiply the following formula by -1:

```
nlcom _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]
```

NOTE BENE:

Time fixed effects estimated for full period with dummies from 1970-2002 (pre 1969 period as baseline); results robust to using 5 dummies of forty year periods; time fixed effects for 1973-2002 period estimated with yearly dummies (1973 as baseline), results robust to using twenty temporal splines.

NOTA BENE:

The models are calculated using robust clustered errors clustered by country. This is the Stata command regress with r cluster(hmccode).

NOTA BENE:

We make our REGIME variable equal to 1 if the regime is autocracy and 0 if it is a democracy. This matches the original way in which Przeworski et al. 2000 originally coded their REGIME variable.

NOTA BENE:

We generated several interactions between the lagged dependent variable and lagged independent variables.

```
generate TOI_Autocracy = L_reg_habmen_corrected_inv*L_Total_Oil_Income_PC_thou
(1911 missing values generated)

generate IncomePC_Autocracy = L_reg_habmen_corrected_inv*L_log_gdp_per_cap_haber_men_2
(5602 missing values generated)

generate CivilWar_Autocracy = L_reg_habmen_corrected_inv*L_Civil_War_Gledistsch
(2442 missing values generated)

generate Growthrate_Autocracy = L_reg_habmen_corrected_inv*L_Logarithmic_growthrate
(5755 missing values generated)
```

NOTA BENE:

Growth rate is in decimals. Move the coefficient two places to the left in order to have the interpretation be GDP growth in percentages.

Online Appendix Table 1, Column 1

```
xi: clogit reg_habmen_corrected_inv L_Total_Oil_Income_PC_thou
L_log_gdp_per_cap_haber_men_2 L_Logarithmic_growthrate L_Civil_War_Gledistsch
L_reg_habmen_corrected_inv TOI_Autocracy IncomePC_Autocracy Growthrate_Autocracy
CivilWar_Autocracy  Dyear_1970-Dyear_2002, r group(hmccode) difficult
note: multiple positive outcomes within groups encountered.
note: 85 groups (3382 obs) dropped because of all positive or
      all negative outcomes.

Iteration 0:   log pseudolikelihood = -582.99765
Iteration 1:   log pseudolikelihood = -564.63974
Iteration 2:   log pseudolikelihood = -562.48833
Iteration 3:   log pseudolikelihood = -562.46912
Iteration 4:   log pseudolikelihood = -562.46904
Iteration 5:   log pseudolikelihood = -562.46904

Conditional (fixed-effects) logistic regression   Number of obs   =       5934
                                                  Wald chi2(42)   =    2984.84
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -562.46904                 Pseudo R2       =     0.8290

                                (Std. Err. adjusted for clustering on hmccode)
------------------------------------------------------------------------------
             |               Robust
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Total_Oi~u |   -.561724   .5571114    -1.01   0.313    -1.653642    .5301943
L_log_gdp_~2 |   -1.77722   .3310499    -5.37   0.000    -2.426066   -1.128374
L_Logarith~e |  -2.137568   1.726016    -1.24   0.216    -5.520498    1.245362
L_Civil_Wa~h |   .5191495    .403981     1.29   0.199    -.2726388    1.310938
L_reg_habm~v |   5.578743   2.511446     2.22   0.026     .6564001    10.50109
TOI_Autocr~y |  -.7644571   .2718483    -2.81   0.005     -1.29727   -.2316443
IncomePC_A~y |   .0671741   .3226569     0.21   0.835    -.5652218    .6995699
Growthrate~y |    5.32798   2.826175     1.89   0.059    -.2112215    10.86718
CivilWar_A~y |  -.8249797   .5493887    -1.50   0.133    -1.901762    .2518023
  Dyear_1970 |   .7530162   .1899856     3.96   0.000     .3806512    1.125381
  Dyear_1971 |   .1436956   .6805377     0.21   0.833    -1.190134    1.477525
  Dyear_1972 |   1.507669   1.092827     1.38   0.168    -.6342331    3.649572
  Dyear_1973 |   1.614873    1.21655     1.33   0.184    -.7695207    3.999266
  Dyear_1974 |   .3669093   .5898309     0.62   0.534    -.7891381    1.522957
  Dyear_1975 |   1.066388   1.085029     0.98   0.326     -1.06023    3.193007
  Dyear_1976 |   1.789855   1.111455     1.61   0.107    -.3885572    3.968266
  Dyear_1977 |   1.953537   1.134595     1.72   0.085    -.2702284    4.177302
  Dyear_1978 |   1.557893   .3229606     4.82   0.000     .9249019    2.190884
  Dyear_1979 |  -.8466434   .5029545    -1.68   0.092    -1.832416    .1391294
  Dyear_1980 |   1.121985   1.527721     0.73   0.463    -1.872293    4.116262
  Dyear_1981 |   1.877501   .9098245     2.06   0.039     .0942783    3.660725
  Dyear_1982 |   .3818531   .8756468     0.44   0.663    -1.334383    2.098089
  Dyear_1983 |  -.2689008   .6227555    -0.43   0.666    -1.489479    .9516774
  Dyear_1984 |  -.1890291   .6654156    -0.28   0.776     -1.49322    1.115161
  Dyear_1985 |   .5806698   .6552531     0.89   0.376    -.7036028    1.864942
  Dyear_1986 |  -.6743678     .54525    -1.24   0.216    -1.743038    .3943024
  Dyear_1987 |    .360681   .3557786     1.01   0.311    -.3366322    1.057994
  Dyear_1988 |  -.8388686   .5368212    -1.56   0.118    -1.891019    .2132817
  Dyear_1989 |  -.6851206   .6983154    -0.98   0.327    -2.053794    .6835524
  Dyear_1990 |  -1.507296   .7284721    -2.07   0.039    -2.935075   -.0795171
  Dyear_1991 |  -1.817116   .6744693    -2.69   0.007    -3.139052   -.4951805
  Dyear_1992 |  -2.545549   .5116066    -4.98   0.000     -3.54828   -1.542819
  Dyear_1993 |  -2.743354   .5867244    -4.68   0.000    -3.893312   -1.593395
  Dyear_1994 |  -2.596992   .6895914    -3.77   0.000    -3.948566   -1.245417
  Dyear_1995 |  -.7293386   .6502199    -1.12   0.262    -2.003746    .5450691
  Dyear_1996 |  -1.815237   1.286037    -1.41   0.158    -4.335824    .7053493
  Dyear_1997 |  -.1160817   .5036001    -0.23   0.818     -1.10312    .8709564
  Dyear_1998 |  -2.355506   .8321615    -2.83   0.005    -3.986512   -.7244994
  Dyear_1999 |  -1.861549   1.117986    -1.67   0.096    -4.052761    .3296624
  Dyear_2000 |  -3.158623   .9536072    -3.31   0.001    -5.027659   -1.289587
  Dyear_2001 |  -1.712365   .7200671    -2.38   0.017     -3.12367    -.301059
  Dyear_2002 |  -.6477769   .6413196    -1.01   0.312     -1.90474    .6091864
```

ONLINE APPENDIX, Column 2

NOW WE USE THE DELTA METHOD TO CALCULATE THE EFFECTS OF THE INDPENDENT VARIABLES ON THE TRANSITION TO DEMOCRACY

THE EFFECT OF OIL RELIANCE ON TRANSITION TO DEMOCRACY

```
nlcom _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

       _nl_1:  _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.326181   .6456163    -2.05   0.040    -2.591566   -.0607964
------------------------------------------------------------------------------
```

Note, Per Eckstein et al. (2006), a Wald Test also produces the same p-value

```
test (L_Total_Oil_Income_PC_thou + TOI_Autocracy) = 0

 ( 1)  [reg_habmen_corrected_inv]L_Total_Oil_Income_PC_thou +
[reg_habmen_corrected_inv]TOI_Autocracy = 0

           chi2(  1) =    4.22
         Prob > chi2 =    0.0400
```

THE EFFECT OF INCOME PER CAPITA ON TRANSITION TO DEMOCRACY

```
nlcom _b[L_log_gdp_per_cap_haber_men_2]+_b[IncomePC_Autocracy]

       _nl_1:  _b[L_log_gdp_per_cap_haber_men_2]+_b[IncomePC_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -1.710046   .2994097    -5.71   0.000    -2.296879   -1.123214
------------------------------------------------------------------------------
```

THE EFFECT OF ECONOMIC GROWTH ON TRANSITION TO DEMOCRACY

```
nlcom _b[L_Logarithmic_growthrate]+_b[Growthrate_Autocracy]

       _nl_1:  _b[L_Logarithmic_growthrate]+_b[Growthrate_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   3.190412   1.948615     1.64   0.102    -.6288036    7.009627
------------------------------------------------------------------------------
```

THE EFFECT OF CIVIL WAR ON TRANSITION TO DEMOCRACY

```
nlcom _b[L_Civil_War_Gledistsch]+_b[CivilWar_Autocracy]

       _nl_1:  _b[L_Civil_War_Gledistsch]+_b[CivilWar_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.3058302   .4420476    -0.69   0.489    -1.172228    .5605672
------------------------------------------------------------------------------
```

Robustness Test that does not appear in online appendix

This result does not change much if we instead include four decade dummies (although note that there was no convergence of the log likelihood function):

```
generate time_dummy_1 = 1 if  _Iyear_1800-_Iyear_1838 == 1
generate time_dummy_2 = 1 if  _Iyear_1839-_Iyear_1879 == 1
generate time_dummy_3 = 1 if  _Iyear_1880-_Iyear_1920 == 1
generate time_dummy_4 = 1 if  _Iyear_1921-_Iyear_1961 == 1
generate time_dummy_5 = 1 if  _Iyear_1962-_Iyear_2002 == 1
replace time_dummy_1 = 0 if  time_dummy_1 == .
replace time_dummy_2 = 0 if  time_dummy_2 == .
replace time_dummy_3 = 0 if  time_dummy_3 == .
replace time_dummy_4 = 0 if  time_dummy_4 == .
replace time_dummy_5 = 0 if  time_dummy_5 == .

xi: clogit reg_habmen_corrected_inv L_Total_Oil_Income_PC_thou
L_log_gdp_per_cap_haber_men_2 L_Logarithmic_growthrate L_Civil_War_Gledistsch
L_reg_habmen_corrected_inv TOI_Autocracy IncomePC_Autocracy Growthrate_Autocracy
CivilWar_Autocracy  time_dummy_1-time_dummy_8, r group(hmccode) difficult iterate(15)
note: time_dummy_1 dropped because of collinearity
note: multiple positive outcomes within groups encountered.
note: 85 groups (3382 obs) dropped because of all positive or
      all negative outcomes.


Conditional (fixed-effects) logistic regression   Number of obs   =       5934
                                                  Wald chi2(13)   =   24149.18
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -620.43887                 Pseudo R2       =     0.8114

                                (Std. Err. adjusted for clustering on hmccode)
------------------------------------------------------------------------------
             |               Robust
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Total_Oi~u |   .2698169   .1867256     1.44   0.148    -.0961586    .6357923
L_log_gdp_~2 |  -1.912106   .2226574    -8.59   0.000    -2.348506   -1.475706
L_Logarith~e |   -1.68678   1.262042    -1.34   0.181    -4.160337    .7867767
L_Civil_Wa~h |   .8036766    .279349     2.88   0.004     .2561627    1.351191
L_reg_habm~v |   4.271508          .        .       .            .           .
TOI_Autocr~y |  -.8620007   .2948073    -2.92   0.003    -1.439812   -.2841891
IncomePC_A~y |    .227569   .0281925     8.07   0.000     .1723127    .2828253
Growthrate~y |   5.737641          .        .       .            .           .
CivilWar_A~y |  -1.435887   .4769189    -3.01   0.003    -2.370631   -.5011436
time_dummy_2 |   5.062261   .4524161    11.19   0.000     4.175542     5.94898
time_dummy_3 |   5.203694          .        .       .            .           .
time_dummy_4 |   .4514592   1.798707     0.25   0.802    -3.073943    3.976861
time_dummy_5 |   .5492128   1.598986     0.34   0.731    -2.584742    3.683168
time_dummy_6 |  -.5439161    1.18718    -0.46   0.647    -2.870747    1.782915
time_dummy_7 |   .3815789   .6937217     0.55   0.582    -.9780906    1.741248
time_dummy_8 |   1.704939   1.254112     1.36   0.174    -.7530763    4.162954
------------------------------------------------------------------------------
Warning: convergence not achieved


nlcom _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

       _nl_1:  _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -.5921839   .3101393    -1.91   0.056    -1.200046     .015678
------------------------------------------------------------------------------
```

REGRESSIONS FOR THE POST 1972 PERIOD, APPEAR IN COLUMN 3 OF THE ONLINE REGRESSION TABLE

```
xi: clogit reg_habmen_corrected_inv L_Total_Oil_Income_PC_thou
L_log_gdp_per_cap_haber_men_2 L_Logarithmic_growthrate L_Civil_War_Gledistsch
L_reg_habmen_corrected_inv TOI_Autocracy IncomePC_Autocracy Growthrate_Autocracy
CivilWar_Autocracy i.year if year > 1972, r group(hmccode)
i.year            _Iyear_1777-2008    (naturally coded; _Iyear_1777 omitted)
note: _Iyear_1973 dropped because of collinearity
note: _Iyear_2003 dropped because of collinearity
note: _Iyear_2004 dropped because of collinearity
note: _Iyear_2005 dropped because of collinearity
note: _Iyear_2006 dropped because of collinearity
note: _Iyear_2007 dropped because of collinearity
note: _Iyear_2008 dropped because of collinearity
note: multiple positive outcomes within groups encountered.
note: 104 groups (2606 obs) dropped because of all positive or
      all negative outcomes.

Conditional (fixed-effects) logistic regression   Number of obs   =       1770
                                                  Wald chi2(38)   =    1633.70
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -198.61394                 Pseudo R2       =     0.7734

                                (Std. Err. adjusted for clustering on hmccode)
------------------------------------------------------------------------------
             |               Robust
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
L_Total_Oi~u |  -3.517169   1.646399    -2.14   0.033    -6.744052   -.2902865
L_log_gdp_~2 |   .7109224   1.022547     0.70   0.487    -1.293233    2.715078
L_Logarith~e |  -10.65449   3.739752    -2.85   0.004    -17.98427   -3.324705
L_Civil_Wa~h |  -.5078992   .6145084    -0.83   0.409    -1.712314    .6965151
L_reg_habm~v |   6.003145    2.31733     2.59   0.010     1.461263    10.54503
TOI_Autocr~y |    1.12152   .9184043     1.22   0.222    -.6785196    2.921559
IncomePC_A~y |  -.1683996   .2840016    -0.59   0.553    -.7250324    .3882332
Growthrate~y |   14.02669   4.603586     3.05   0.002      5.00383    23.04955
CivilWar_A~y |   1.087996    .769853     1.41   0.158    -.4208881     2.59688
 _Iyear_1974 |  -.5571464   .5770689    -0.97   0.334    -1.688181    .5738879
 _Iyear_1975 |  -.1111673   .9021591    -0.12   0.902    -1.879367    1.657032
 _Iyear_1976 |   .7503393   1.253626     0.60   0.549    -1.706722    3.207401
 _Iyear_1977 |   .7712615   1.398169     0.55   0.581      -1.9691    3.511623
 _Iyear_1978 |   .4708934   .8823675     0.53   0.594    -1.258515    2.200302
 _Iyear_1979 |  -2.137303   .9591953    -2.23   0.026    -4.017292   -.2573152
 _Iyear_1980 |   -.464388   1.512016    -0.31   0.759    -3.427884    2.499108
 _Iyear_1981 |   .2207747   1.049469     0.21   0.833    -1.836147    2.277697
 _Iyear_1982 |   -.978919   1.162467    -0.84   0.400    -3.257312    1.299474
 _Iyear_1983 |  -1.814738   .8872444    -2.05   0.041    -3.553705   -.0757712
 _Iyear_1984 |  -1.922443   .9923964    -1.94   0.053    -3.867504    .0226182
 _Iyear_1985 |  -.9903633   1.411152    -0.70   0.483    -3.756171    1.775444
 _Iyear_1986 |  -2.387077   1.011771    -2.36   0.018    -4.370112   -.4040422
 _Iyear_1987 |  -1.407362   .9727273    -1.45   0.148    -3.313872    .4991489
 _Iyear_1988 |  -2.717829   .9573794    -2.84   0.005    -4.594258   -.8413999
 _Iyear_1989 |  -2.647231   1.070103    -2.47   0.013    -4.744595   -.5498667
 _Iyear_1990 |  -3.545838   1.194154    -2.97   0.003    -5.886337    -1.20534
 _Iyear_1991 |  -3.708892   1.129836    -3.28   0.001    -5.923329   -1.494455
 _Iyear_1992 |  -4.517874   1.067779    -4.23   0.000    -6.610683   -2.425065
 _Iyear_1993 |  -4.750932    1.10595    -4.30   0.000    -6.918554   -2.583309
 _Iyear_1994 |  -4.890997   1.130795    -4.33   0.000    -7.107315   -2.674679
 _Iyear_1995 |  -3.378638   1.094403    -3.09   0.002     -5.52363   -1.233647
 _Iyear_1996 |  -4.105387   1.618639    -2.54   0.011    -7.277861    -.932912
 _Iyear_1997 |  -2.803505   1.079471    -2.60   0.009     -4.91923   -.6877801
 _Iyear_1998 |  -4.623105   1.204975    -3.84   0.000    -6.984812   -2.261398
 _Iyear_1999 |  -4.304105   1.497264    -2.87   0.004    -7.238689    -1.36952
 _Iyear_2000 |  -5.677069   1.458115    -3.89   0.000    -8.534922   -2.819217
 _Iyear_2001 |  -4.314397    1.20822    -3.57   0.000    -6.682465    -1.94633
 _Iyear_2002 |   -3.97064   1.241459    -3.20   0.001    -6.403855   -1.537425
------------------------------------------------------------------------------
```

ONLINE APPENDIX, Column 4

NOW WE USE THE DELTA METHOD TO CALCULATE THE EFFECTS OF THE INDPENDENT VARIABLES ON THE TRANSITION TO DEMOCRACY

EFFECT OF OIL RELIANCE ON TRANSITION TO DEMOCRACY

```
nlcom _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

       _nl_1:  _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |  -2.395649   1.427704    -1.68   0.093    -5.193897    .4025984
------------------------------------------------------------------------------
```

EFFECT OF GDP PER CAPITA

```
nlcom _b[L_log_gdp_per_cap_haber_men_2]+_b[IncomePC_Autocracy]

       _nl_1:  _b[L_log_gdp_per_cap_haber_men_2]+_b[IncomePC_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5425228    .974364     0.56   0.578    -1.367196    2.452241
------------------------------------------------------------------------------
```

EFFECT OF ECONOMIC GROWTH

```
nlcom _b[L_Logarithmic_growthrate]+_b[Growthrate_Autocracy]

       _nl_1:  _b[L_Logarithmic_growthrate]+_b[Growthrate_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   3.372207   2.330904     1.45   0.148    -1.196282    7.940696
------------------------------------------------------------------------------
```

EFFECT OF CIVIL WAR

```
nlcom _b[L_Civil_War_Gledistsch]+_b[CivilWar_Autocracy]

       _nl_1:  _b[L_Civil_War_Gledistsch]+_b[CivilWar_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .5800969    .590075     0.98   0.326    -.5764288    1.736623
------------------------------------------------------------------------------
```

ROBUSTNESS: RESULT HOLDS WITH SPLINES INSTEAD OF YEAR DUMMIES (Not shown in online appendix).

```
mkspline year 160 = year
```

```
xi: clogit reg_habmen_corrected_inv L_Total_Oil_Income_PC_thou
L_log_gdp_per_cap_haber_men_2 L_Logarithmic_growthrate L_Civil_War_Gledistsch
L_reg_habmen_corrected_inv TOI_Autocracy IncomePC_Autocracy Growthrate_Autocracy
CivilWar_Autocracy  year1- year160 if year > 1972, r group(hmccode)

note: year135 dropped because of collinearity
note: year157 dropped because of collinearity
note: year158 dropped because of collinearity
note: year159 dropped because of collinearity
note: year160 dropped because of collinearity
note: multiple positive outcomes within groups encountered.
note: 104 groups (2606 obs) dropped because of all positive or
      all negative outcomes.

Conditional (fixed-effects) logistic regression   Number of obs   =       1770
                                                  Wald chi2(30)   =    1213.25
                                                  Prob > chi2     =     0.0000
Log pseudolikelihood = -202.31818                 Pseudo R2       =     0.7691

                                (Std. Err. adjusted for clustering on hmccode)
```

reg_habmen~v	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
L_Total_Oi~u	-3.538652	1.671473	-2.12	0.034	-6.814678	-.262626
L_log_gdp_~2	.7048552	1.040263	0.68	0.498	-1.334024	2.743734
L_Logarith~e	-10.81787	3.839339	-2.82	0.005	-18.34283	-3.292901
L_Civil_Wa~h	-.4689717	.6135454	-0.76	0.445	-1.671499	.7335551
L_reg_habm~v	5.6902	2.206977	2.58	0.010	1.364606	10.01579
TOI_Autocr~y	1.218452	.9953096	1.22	0.221	-.732319	3.169223
IncomePC_A~y	-.1446265	.2751125	-0.53	0.599	-.683837	.394584
Growthrate~y	13.99442	4.76038	2.94	0.003	4.664252	23.3246
CivilWar_A~y	1.004884	.7330828	1.37	0.170	-.4319322	2.4417
year136	-2.242588	2.936544	-0.76	0.445	-7.998108	3.512932
year137	.3727756	1.16013	0.32	0.748	-1.901037	2.646588
year138	.7450066	1.103157	0.68	0.499	-1.417142	2.907155
year139	.1287275	.9756557	0.13	0.895	-1.783523	2.040978
year140	-2.34268	.8650414	-2.71	0.007	-4.038129	-.6472297
year141	2.130962	.8973418	2.37	0.018	.3722043	3.88972
year142	-1.158862	.9769394	-1.19	0.236	-3.073628	.7559041
year143	-.8632162	.7005726	-1.23	0.218	-2.236313	.5098809
year144	.7379962	.7496164	0.98	0.325	-.731225	2.207217
year145	-.6917479	.739788	-0.94	0.350	-2.141706	.7582099
year146	-.1095569	.7314246	-0.15	0.881	-1.543123	1.324009
year147	-.4145962	.683346	-0.61	0.544	-1.75393	.9247374
year148	-.4847872	.5920625	-0.82	0.413	-1.645208	.6756339
year149	-.5760788	.5519395	-1.04	0.297	-1.65786	.5057028
year150	-.4455583	.4929675	-0.90	0.366	-1.411757	.5206403
year151	1.00003	.5007049	2.00	0.046	.0186664	1.981394
year152	.2832636	.8209332	0.35	0.730	-1.325736	1.892263
year153	-.565451	.8978228	-0.63	0.529	-2.325151	1.194249
year154	-.7039991	.8054307	-0.87	0.382	-2.282614	.8746162
year155	.0793386	.7865311	0.10	0.920	-1.462234	1.620911
year156	.8534872	.7579233	1.13	0.260	-.6320152	2.33899

TRANSITION TO DEMOCRACY

```
. nlcom _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

       _nl_1:  _b[L_Total_Oil_Income_PC_thou]+_b[TOI_Autocracy]

------------------------------------------------------------------------------
reg_habmen~v |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |    -2.3202    1.39539    -1.66   0.096    -5.055114    .4147139
------------------------------------------------------------------------------
```