DESCRIPTIONS OF ALL VARIABLES USED

. des year state stateid gsp ranney FL recession aggroups busgroups commgroups congroups edugroups elecgroups energygroups entgroups fingroups heal

> thgroups lawgroups leisuregroups realgroups socgroups transgroups totalgroups adjgroups agemploy busemploy commemploy constemploy eduemploy elece

> mploy energyemploy enteremploy finemploy healthemploy lawemploy leisureemploy realemploy socemploy transemploy percapita ig adjpop percapitaspend

> ing adjpercapitadebt percapitarevenue badegreespercapita adjberry1 berry2 association advocacy advchange legprofcombo dempercent adjrevenue state

> employ gov govpower

variable name	storage type	display format	value label	variable label
year	int	%8.0g		Observed year
state	str2	%9s		State name
stateid	byte	%8.0g		State ID number
gsp	float	%9.0g		Gross state product divded by 100
ranney	float	%9.0g		Four year foulded Ranney index
FL	float	%9.0g		Coded 1 for Florida
recession	float	%9.0g		Coded 1 for 2008
aggroups	int	%8.0g		Number of agriculture interest groups
busgroups	int	%8.0g		Number of general business interest groups
commgroups	int	%8.0g		Number of communication industry interest groups
congroups	int	%8.0g		Number of construction interest groups
edugroups	int	%8.0g		Number of education (K-college) interest groups
elecgroups	int	%8.0g		Number of electronics industry interest groups
energygroups	int	%8.0g		Number of energy industry interest groups

entgroups	int	%8.0g	Number of entertainment industry interest groups
fingroups	int	%8.0g	Number of finance industry interest groups
healthgroups	int	%8.0g	Number of health and health insurance interest groups
lawgroups	int	%8.0g	Number of legal profession interest groups
leisuregroups	int	%8.0g	Number of leisure industry interest groups
realgroups	int	%8.0g	Number of real estate interest groups
socgroups	int	%8.0g	Number of social service interest groups
transgroups	int	%8.0g	Number of transportation interest groups
totalgroups	int	%8.0g	Total number of interest groups in a state
adjgroupsperc~a	float	%9.0g	Totalgroups divided by population, times 10,000,000
agemploy	long	%12.0g	Number of people employed in agriculture
busemploy	long	%12.0g	Number of people employed in manufacturing, retail, and wholesale business
commemploy	long	%12.0g	Number of people employed in communications
constemploy	long	%12.0g	Number of people employed in construction
eduemploy	long	%12.0g	Number of people employed in education
elecemploy	long	%12.0g	Number of people employed in electronics
energyemploy	long	%12.0g	Number of people employed in energy and natural resources
enteremploy	long	%12.0g	Number of people employed in entertainment
finemploy	long	%12.0g	Number of people employed in banking, finance, and insurance
healthemploy	long	%12.0g	Number of people employed in health care and pharmaceuticals
lawemploy	long	%12.0g	Number of people employed in the legal industry
leisureemploy	long	%12.0g	Number of people employ in leisure, hospitality, brewing and food service
realemploy	long	%12.0g	Number of people employed in real estate
socemploy	long	%12.0g	Number of people employed in nonprofit social services
transemploy	long	%12.0g	Number of people employed in transportation
percapita	long	%12.0g	Per capita income for the state
ig	int	%8.0g	Number of true interest groups in the state

adjpop float %9.0g Population divided by 1,000,000

percapitaspen~g float %9.0g Adjspending divided by pop and then multiplied by 1,000

adjpercapitad~t float %9.0g Percapitadebt * 1,000,000

percapitareve~e float %9.0g Is adjrevenue divided by adjpop and then divided by 10,000

badegreesperc~a float %9.0g Is badegrees divided by pop and then multiplied by 100

adjberry1 float %9.0g Is berry1 divided by 100

berry2 float %9.0g Berry's government ideology

association int %8.0g Number of professional and trade associations

advocacygroup int %8.0g Number of ideological advocacy groups

advchange float %9.0g One year percentage change in citizen groups

legprofcombo float %9.0g Squire Index of legislative professionalism

dempercent float %9.0g Percent of legislators who are Democrats

adjrevenue float %9.0g Revenue adjusted to 2017 dollars

stateemploy long %12.0g Number of full time state government employees

gov byte %8.0g Coded 1 if the governor is a Democrat

govpower float %9.0g Code for governor's budget powers

MODELS AND ESTIMATES REFERENCES IN ARTICLE'S ENDNOTES

THESE ARE THE ESTIMATES REFERENCED IN ENDNOTE 8, AS WELL AS THE ORIGINAL ESTIMATES FOR TABLE 1

TABLE 1 ESTIMATES (in order of presentation in the table):

. xtnbreg totalgroups gsp gspsq ranney FL recession

Random-effects negative binomial regression Number of obs = 588

Group variable: stateid Number of groups = 49

Random effects u_i ~ Beta Obs per group:

min = 12

avg = 12.0

max = 12

Wald chi2(5) = 74.98

Log likelihood = -3922.3175 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gsp	.097946	.0167579	5.84	0.000	.065101	.1307909
gspsq	-.0018296	.0004833	-3.79	0.000	-.0027768	-.0008824
ranney	-.1803367	.1330787	-1.36	0.175	-.4411661	.0804927
FL	.9980098	.3104138	3.22	0.001	.3896098	1.60641
recession	.0187574	.0266166	0.70	0.481	-.0334101	.070925
_cons	3.286666	.1427352	23.03	0.000	3.00691	3.566422
/ln_r	1.801799	.2300081			1.350992	2.252607
/ln_s	5.076445	.2561426			4.574415	5.578476
r	6.060543	1.393974			3.861253	9.512503
s	160.2036	41.03496			96.9713	264.6679

LR test vs. pooled: chibar2(01) = 548.03 Prob >= chibar2 = 0.000

. xtpcse totalgroups gsp gspsq ranney FL recession

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: stateid Number of obs = 588

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 12

avg = 12

max = 12

Estimated covariances = 1225 R-squared = 0.8393

Estimated autocorrelations = 0 Wald chi2(5) = 5815.96

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

| Coef. Std. Err. z P>\|z\| [95% Conf. Interval]

totalgroups

gsp	271.4853	6.996285	38.80	0.000	257.7729	285.1978
gspsq	-5.624528	.3858773	-14.58	0.000	-6.380833	-4.868222
ranney	104.414	107.8782	0.97	0.333	-107.0233	315.8513
FL	1287.559	98.62683	13.05	0.000	1094.254	1480.864
recession	17.70704	42.57582	0.42	0.677	-65.74003	101.1541
_cons	244.9814	92.87332	2.64	0.008	62.95309	427.0098

. mixed totalgroups gsp gspsq ranney FL recession || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -4011.7555

Iteration 1: log likelihood = -4011.7555

Computing standard errors:

Mixed-effects ML regression Number of obs = 588

Group variable: stateid Number of groups = 49

Obs per group:

min = 12

avg = 12.0

max = 12

Wald chi2(5) = 403.16

Log likelihood = -4011.7555 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gsp	224.645	16.59242	13.54	0.000	192.1245	257.1656
gspsq	-3.789482	.608044	-6.23	0.000	-4.981226	-2.597738
ranney	-96.39178	137.7744	-0.70	0.484	-366.4247	173.6411
FL	1432.701	291.1597	4.92	0.000	862.0383	2003.363
recession	17.69754	29.19059	0.61	0.544	-39.51496	74.91004
_cons	516.8213	131.6083	3.93	0.000	258.8738	774.7688

```
 Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   76217.39   16815.13      49460.84    117448.3
-----------------------------+------------------------------------------------
               var(Residual) |   37742.31   2309.376       33476.9     42551.2
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 459.46        Prob >= chibar2 = 0.0000
```

```
. xtreg adjgroupgsp gsp gspsq ranney FL recession, cluster(stateid)

Random-effects GLS regression                   Number of obs     =       588
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0511                                         min =        12
     between = 0.4599                                         avg =      12.0
     overall = 0.4111                                         max =        12

                                                Wald chi2(5)      =     44.92
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -81.90227   15.65346    -5.23   0.000    -112.5825   -51.22205
       gspsq |   2.059821   .5673483     3.63   0.000     .9478387    3.171803
```

```
     ranney |  -17.89007   115.3767    -0.16   0.877    -244.0242     208.244
         FL |   213.0694   58.64809     3.63   0.000     98.12128    328.0176
  recession |   22.81322     13.401     1.70   0.089    -3.452255    49.07869
      _cons |   751.3657   118.0733     6.36   0.000     519.9462    982.7851
-------------+----------------------------------------------------------------
    sigma_u |  200.29808
    sigma_e |  106.10029
        rho |  .78088714   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse adjgroupgsp gsp gspsq ranney FL recession

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       588
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        12
                                                            avg =        12
                                                            max =        12
Estimated covariances     =      1225     R-squared         =    0.4629
Estimated autocorrelations =        0     Wald chi2(5)      =   4391.52
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
 adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -121.5232   7.065808   -17.20   0.000    -135.3719   -107.6745
```

```
      gspsq |   4.364693   .4281625    10.19   0.000     3.52551    5.203876
     ranney |   38.71011   79.98946     0.48   0.628    -118.0664    195.4866
         FL |   318.4658   15.15133    21.02   0.000     288.7697    348.1619
  recession |   22.24695   27.41152     0.81   0.417    -31.47865    75.97254
      _cons |   768.2843   71.27585    10.78   0.000     628.5862    907.9824
------------------------------------------------------------------------------

. mixed adjgroupgsp gsp gspsq ranney FL recession || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -3669.2353
Iteration 1:   log likelihood = -3669.2353

Computing standard errors:

Mixed-effects ML regression                    Number of obs     =        588
Group variable: stateid                        Number of groups  =         49

                                               Obs per group:
                                                             min =         12
                                                             avg =       12.0
                                                             max =         12

                                               Wald chi2(5)      =      70.20
Log likelihood = -3669.2353                    Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
 adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -81.57891   10.57136    -7.72   0.000    -102.2984   -60.85943
       gspsq |   2.044158   .3578477     5.71   0.000     1.34279    2.745527
      ranney |  -18.11421   76.02294    -0.24   0.812    -167.1164     130.888
          FL |   212.0974   214.1228     0.99   0.322    -207.5756    631.7703
   recession |   22.82915   15.91473     1.43   0.151    -8.363155    54.02146
       _cons |   750.9439   77.31129     9.71   0.000     599.4166    902.4713
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   42434.03   8865.092      28176.42    63906.17
-----------------------------+------------------------------------------------
               var(Residual) |   11187.26   682.1996      9926.983    12607.53
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 676.99        Prob >= chibar2 = 0.0000
```

FOR ANNUAL ESTIMATES OF ORGANIZATIONS DIVIDED BY GSP, NONE OF THE THREE MODELS USED ABOVE HAD ENOUGH OBSERVATION TO MAKE ACCURATE ESTIMATIONS, SO THESE ARE ALL DONE WITH REGULAR OLS REGRESSION CLUSTERED BY STATE.

```
. reg adjgroupgsp gsp gspsq ranney FL recession if year==2006, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                       Number of obs     =         49
```

```
                                F(3, 48)        =         .
                                Prob > F        =         .
                                R-squared       =    0.5082
                                Root MSE        =    216.91

                        (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -148.3127   29.36219    -5.05   0.000    -207.3493   -89.27607
       gspsq |   6.505101   1.561194     4.17   0.000     3.366111    9.644091
      ranney |  -157.5672   397.3139    -0.40   0.693    -956.4203    641.2859
          FL |   298.7353   100.4929     2.97   0.005     96.68069    500.7899
   recession |         0  (omitted)
       _cons |   973.9161   328.9542     2.96   0.005     312.5094    1635.323
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2007, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                       Number of obs     =        49
                                F(3, 48)        =         .
                                Prob > F        =         .
                                R-squared       =    0.5287
                                Root MSE        =    239.83

                        (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
```

```
             |               Robust
adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -176.2466   32.09049    -5.49   0.000    -240.7689   -111.7244
       gspsq |   8.226558   1.869053     4.40   0.000     4.468574    11.98454
      ranney |  -493.5794   470.6655    -1.05   0.300    -1439.916     452.757
          FL |   314.9993   101.7834     3.09   0.003     110.3502    519.6485
   recession |          0  (omitted)
       _cons |   1355.578    419.319     3.23   0.002     512.4811    2198.676
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2008, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.5147
                                                Root MSE          =     228.75

                                   (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -150.6184   28.60314    -5.27   0.000    -208.1289   -93.10793
       gspsq |   6.249503    1.44346     4.33   0.000     3.347233    9.151773
      ranney |  -306.2346   420.7227    -0.73   0.470    -1152.154    539.6851
          FL |   327.1743   95.10001     3.44   0.001     135.963    518.3857
```

```
  recession |         0  (omitted)
      _cons |   1137.774   361.4314     3.15   0.003     411.0674     1864.48
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2009, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.5359
                                                Root MSE          =     217.93

                                   (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -159.3065   28.72183    -5.55   0.000    -217.0556   -101.5574
       gspsq |   7.168701    1.61478     4.44   0.000     3.921968    10.41543
      ranney |  -237.7666   319.5836    -0.74   0.461    -880.3325    404.7993
          FL |   244.5872   87.08502     2.81   0.007     69.49104    419.6834
  recession |         0  (omitted)
      _cons |   1081.092   264.5125     4.09   0.000     549.2539    1612.93
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2010, cluster(stateid)
note: recession omitted because of collinearity
```

```
Linear regression                       Number of obs     =         49
                                        F(3, 48)          =          .
                                        Prob > F          =          .
                                        R-squared         =     0.5089
                                        Root MSE          =      237.4

                          (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -158.4447   32.15274    -4.93   0.000    -223.0921   -93.79725
       gspsq |   6.836624   1.692607     4.04   0.000     3.433409    10.23984
      ranney |  -273.9463   334.7839    -0.82   0.417    -947.0744    399.1818
          FL |   326.8423   93.85501     3.48   0.001     138.1342    515.5505
   recession |          0  (omitted)
       _cons |   1106.472   274.6315     4.03   0.000     554.2884    1658.656
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2011, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                       Number of obs     =         49
                                        F(3, 48)          =          .
                                        Prob > F          =          .
                                        R-squared         =     0.4976
                                        Root MSE          =     209.47

                          (Std. Err. adjusted for 49 clusters in stateid)
```

```
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -137.0871   25.05074    -5.47   0.000     -187.455   -86.71919
       gspsq |   5.850959   1.342363     4.36   0.000     3.151958     8.54996
      ranney |  -87.28293   363.7786    -0.24   0.811    -818.7089     644.143
          FL |   376.6801   73.96565     5.09   0.000     227.9622     525.398
   recession |          0  (omitted)
       _cons |   881.2887   321.9831     2.74   0.009     233.8982    1528.679
------------------------------------------------------------------------------
```

```
. reg adjgroupgsp gsp gspsq ranney FL recession if year==2012, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.5211
                                                Root MSE          =     201.13

                                   (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -126.2941   24.55867    -5.14   0.000    -175.6726   -76.91562
       gspsq |   5.013237   1.197202     4.19   0.000     2.606101    7.420373
      ranney |  -380.0251   255.3728    -1.49   0.143    -893.4866    133.4364
```

```
        FL |   366.232   73.40542     4.99   0.000     218.6405    513.8235
  recession |         0  (omitted)
     _cons |   1107.991   217.3504     5.10   0.000     670.9791    1545.004
------------------------------------------------------------------------------
```

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2013, cluster(stateid)

note: recession omitted because of collinearity

```
Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.4837
                                                Root MSE          =     258.57

                                   (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   -164.655   32.67842    -5.04   0.000    -230.3593   -98.95061
       gspsq |    6.94604   1.696937     4.09   0.000     3.534119    10.35796
      ranney |   459.1404   453.7623     1.01   0.317    -453.2099    1371.491
          FL |   405.2265   87.38583     4.64   0.000     229.5255    580.9275
  recession |         0  (omitted)
       _cons |   537.9363   374.1014     1.44   0.157    -214.2449    1290.117
------------------------------------------------------------------------------
```

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2014, cluster(stateid)

note: recession omitted because of collinearity

```
Linear regression                       Number of obs     =         49
                                        F(3, 48)          =          .
                                        Prob > F          =          .
                                        R-squared         =     0.5131
                                        Root MSE          =     208.65

                          (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -126.2517   24.87287    -5.08   0.000     -176.262   -76.24148
       gspsq |   4.708198   1.141537     4.12   0.000     2.412983    7.003412
      ranney |   428.9775   345.3238     1.24   0.220    -265.3425    1123.298
          FL |   356.5678   75.13185     4.75   0.000     205.5051    507.6305
   recession |          0  (omitted)
       _cons |   448.0721   269.0053     1.67   0.102    -92.79933    988.9435
------------------------------------------------------------------------------

. reg adjgroupgsp gsp gspsq ranney FL recession if year==2015, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                       Number of obs     =         49
                                        F(3, 48)          =          .
                                        Prob > F          =          .
                                        R-squared         =     0.4929
                                        Root MSE          =     211.64
```

(Std. Err. adjusted for 49 clusters in stateid)

```
------------------------------------------------------------------------------
             |               Robust
adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -112.0714   22.02168    -5.09   0.000    -156.3489   -67.79383
       gspsq |   3.878775   .9188136     4.22   0.000     2.031377    5.726174
      ranney |   658.4334   373.7753     1.76   0.085    -93.09212    1409.959
          FL |   323.2159    72.143     4.48   0.000     178.1627    468.2691
   recession |          0  (omitted)
       _cons |   229.7783   306.0504     0.75   0.456    -385.5773    845.1338
------------------------------------------------------------------------------
```

```
. reg adjgroupgsp gsp gspsq ranney FL recession if year==2016, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.4432
                                                Root MSE          =     221.86
```

(Std. Err. adjusted for 49 clusters in stateid)

```
------------------------------------------------------------------------------
             |               Robust
adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -98.04018   21.87171    -4.48   0.000    -142.0162   -54.06417
       gspsq |    3.08017   .8393728     3.67   0.001     1.392498    4.767842
```

```
     ranney |  -28.30544   422.9764    -0.07   0.947    -878.7565    822.1456
         FL |   312.6413   77.84462     4.02   0.000     156.1242    469.1584
  recession |          0  (omitted)
      _cons |   749.7262   322.8654     2.32   0.025     100.5617    1398.891
------------------------------------------------------------------------------
```

```
. reg adjgroupgsp gsp gspsq ranney FL recession if year==2017, cluster(stateid)
note: recession omitted because of collinearity

Linear regression                               Number of obs     =         49
                                                F(3, 48)          =          .
                                                Prob > F          =          .
                                                R-squared         =     0.4653
                                                Root MSE          =      206.8

                                   (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 adjgroupgsp |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |  -93.12916   19.74344    -4.72   0.000    -132.826   -53.43232
       gspsq |   2.863577   .7233819     3.96   0.000     1.40912    4.318034
      ranney |   540.7238   365.9129     1.48   0.146    -194.9934    1276.441
          FL |    337.797   74.72344     4.52   0.000     187.5555    488.0385
   recession |          0  (omitted)
       _cons |   249.8397   288.4221     0.87   0.391    -330.0718    829.7511
------------------------------------------------------------------------------
```

FOR ANNUAL ESTIMATES OF TOTAL GROUPS, THE "MIXED" AND "XTPCSE" MODELS WOULD NOT ESTIMATE, BUT

THE XTBNREG WOULD ESTIMATE FOR ALL YEARS EXCEPT 2010, 2011, AND 2016

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2006

note: recession omitted because of collinearity

Random-effects negative binomial regression Number of obs = 49

Group variable: stateid Number of groups = 49

Random effects u_i ~ Beta Obs per group:

min = 1

avg = 1.0

max = 1

Wald chi2(4) = 184.46

Log likelihood = -337.53077 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gsp	.3560417	.0354713	10.04	0.000	.2865192	.4255641
gspsq	-.0138612	.0021183	-6.54	0.000	-.0180131	-.0097094
ranney	.7527632	.6104578	1.23	0.218	-.4437121	1.949239
FL	.2561617	.3289686	0.78	0.436	-.3886049	.9009284
recession	0	(omitted)				
_cons	5.75851	2.743898	2.10	0.036	.3805694	11.13645

```
      /ln_r |   3.427428   1.464928                .5562224    6.298633
      /ln_s |   2.955036   .9794961                1.035258    4.874813
-------------+------------------------------------------------------------------
           r |   30.79732   45.11584               1.744072    543.8279
           s |   19.20241   18.80868               2.815834    130.9496
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 0.00              Prob >= chibar2 = 1.000

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2007
note: recession omitted because of collinearity



Random-effects negative binomial regression     Number of obs     =        49
Group variable: stateid                         Number of groups  =        49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =         1
                                                              avg =       1.0
                                                              max =         1

                                                Wald chi2(4)      =    215.89
Log likelihood  = -336.47323                    Prob > chi2       =    0.0000

------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .3413111    .034037    10.03   0.000     .2745997    .4080225
       gspsq |  -.0134149   .0021792    -6.16   0.000    -.0176861   -.0091438
```

```
     ranney |    .393809   .4837656     0.81   0.416    -.5543542    1.341972
         FL |   .3026067   .2855688     1.06   0.289    -.2570978    .8623113
  recession |          0  (omitted)
      _cons |   3.914496    1.43004     2.74   0.006     1.111669    6.717323
-------------+----------------------------------------------------------------
      /ln_r |   2.868137   .2320014                      2.413422    3.322851
      /ln_s |   4.620589   1.328621                      2.016539    7.224639
-------------+----------------------------------------------------------------
           r |   17.60419   4.084196                     11.17213    27.73933
           s |   101.5538   134.9266                     7.512282    1372.843
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 6.81                 Prob >= chibar2 = 0.005

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2008
note: recession omitted because of collinearity



Random-effects negative binomial regression     Number of obs     =         49
Group variable: stateid                         Number of groups  =         49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =          1
                                                              avg =        1.0
                                                              max =          1

                                                Wald chi2(4)      =     212.88
Log likelihood  = -337.31597                    Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .3151461   .0306591    10.28   0.000     .2550553    .3752369
       gspsq |  -.0114909   .0017762    -6.47   0.000    -.0149721   -.0080097
      ranney |   .4861102   .4731441     1.03   0.304    -.4412353    1.413456
          FL |   .3845261   .2827095     1.36   0.174    -.1695743    .9386265
   recession |           0  (omitted)
       _cons |   4.044754   1.409465     2.87   0.004     1.282253    6.807254
-------------+----------------------------------------------------------------
      /ln_r |   2.895376   .2493485                      2.406662    3.384091
      /ln_s |   4.476502   1.242011                      2.042205    6.910798
-------------+----------------------------------------------------------------
           r |   18.09031   4.510792                     11.09686    29.49116
           s |   87.92654   109.2057                     7.707588    1003.048
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 9.42                 Prob >= chibar2 = 0.001

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2009
note: recession omitted because of collinearity


Random-effects negative binomial regression     Number of obs     =         49
Group variable: stateid                         Number of groups  =         49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =          1
                                                              avg =        1.0
                                                              max =          1
```

```
                                Wald chi2(4)      =     186.31
Log likelihood  = -338.50584                    Prob > chi2       =     0.0000

------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .3361374   .0353701     9.50   0.000     .2668133    .4054616
       gspsq |  -.0127765   .0021869    -5.84   0.000    -.0170627   -.0084903
      ranney |   .1958755   .4665894     0.42   0.675    -.7186228    1.110374
          FL |   .1021951   .2952274     0.35   0.729    -.4764399    .6808301
   recession |          0  (omitted)
       _cons |   3.966952   2.058057     1.93   0.054    -.0667668     8.00067
-------------+----------------------------------------------------------------
       /ln_r |     2.7718   .2294035                      2.322177    3.221423
       /ln_s |   4.635297   1.999565                      .7162215    8.554373
-------------+----------------------------------------------------------------
           r |   15.98739   3.667563                      10.19786    25.06375
           s |   103.0585   206.0723                      2.046685    5189.397
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 3.94                 Prob >= chibar2 = 0.024


. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2012
note: recession omitted because of collinearity


Random-effects negative binomial regression     Number of obs     =         49
```

Group variable: stateid Number of groups = 49

Random effects u_i ~ Beta Obs per group:

min = 1

avg = 1.0

max = 1

Wald chi2(4) = 101.79

Log likelihood = -351.77856 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gsp	.2825116	.0420574	6.72	0.000	.2000805	.3649426
gspsq	-.0091684	.0021418	-4.28	0.000	-.0133663	-.0049706
ranney	.1992686	.6200106	0.32	0.748	-1.01593	1.414467
FL	.533172	.3982117	1.34	0.181	-.2473086	1.313652
recession	0	(omitted)				
_cons	18.7945	248.7201	0.08	0.940	-468.6879	506.2769
/ln_r	14.8499	248.7192			-472.6307	502.3305
/ln_s	1.990814	.1997882			1.599236	2.382391
r	2813378	7.00e+08			5.5e-206	1.4e+218
s	7.32149	1.462747			4.949251	10.83077

LR test vs. pooled: chibar2(01) = 2.79 Prob >= chibar2 = 0.048

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2013

note: recession omitted because of collinearity

Random-effects negative binomial regression Number of obs = 49
Group variable: stateid Number of groups = 49

Random effects u_i ~ Beta Obs per group:
min = 1
avg = 1.0
max = 1

Wald chi2(4) = 165.20
Log likelihood = -347.15662 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gsp	.2949749	.0348774	8.46	0.000	.2266163	.3633334
gspsq	-.0096125	.001925	-4.99	0.000	-.0133855	-.0058396
ranney	.9421663	.5570345	1.69	0.091	-.1496012	2.033934
FL	.3919117	.3287686	1.19	0.233	-.2524629	1.036286
recession	0	(omitted)				
_cons	5.466244	2.070883	2.64	0.008	1.407387	9.525101
/ln_r	3.120925	1.028673			1.104763	5.137088
/ln_s	2.999012	.9677027			1.102349	4.895674
r	22.66735	23.31729			3.018509	170.2193

```
         s |    20.0657   19.41763                 3.011232    133.7101
-------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 0.00              Prob >= chibar2 = 1.000

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2014
note: recession omitted because of collinearity


Random-effects negative binomial regression     Number of obs     =        49
Group variable: stateid                         Number of groups  =        49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =         1
                                                              avg =       1.0
                                                              max =         1

                                                Wald chi2(4)      =    187.29
Log likelihood  = -343.33388                    Prob > chi2       =    0.0000

------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .2698777   .0309462     8.72   0.000     .2092243    .3305311
       gspsq |  -.0080766   .0014895    -5.42   0.000     -.010996   -.0051571
      ranney |   .8767052   .5032166     1.74   0.081    -.1095812    1.862992
          FL |    .391698   .3132062     1.25   0.211    -.2221749    1.005571
   recession |          0  (omitted)
       _cons |    4.36601    4.91019     0.89   0.374    -5.257786     13.9898
```

```
-------------+----------------------------------------------------------------
      /ln_r |   2.877598   1.099315                .72298    5.032216
      /ln_s |   3.892605   3.855889               -3.664799    11.45001
-------------+----------------------------------------------------------------
           r |   17.77153   19.53651               2.060565    153.2722
           s |   49.03845   189.0868               .0256093    93902.11
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 4.83                 Prob >= chibar2 = 0.014

. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2015
note: recession omitted because of collinearity


Random-effects negative binomial regression     Number of obs     =         49
Group variable: stateid                         Number of groups  =         49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =          1
                                                              avg =        1.0
                                                              max =          1

                                                Wald chi2(4)      =     141.88
Log likelihood  = -350.57644                    Prob > chi2       =     0.0000

------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .2597612   .0317762     8.17   0.000     .197481    .3220414
```

```
      gspsq |  -.0072096    .001381    -5.22   0.000    -.0099164   -.0045029
     ranney |   1.384238   .6066299     2.28   0.022     .1952656    2.573211
         FL |   .2848663    .347909     0.82   0.413    -.3970228    .9667553
  recession |          0  (omitted)
      _cons |   10.00379   62.59239     0.16   0.873    -112.675    132.6826
------------+------------------------------------------------------------------
      /ln_r |   7.234972   62.12803                -114.5337    129.0037
      /ln_s |    2.26358   .4687032                 1.344938    3.182221
------------+------------------------------------------------------------------
         r |   1387.103   86177.96                1.81e-50    1.06e+56
         s |   9.617455   4.507732                3.837949    24.10022
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 0.00              Prob >= chibar2 = 1.000
```

```
. xtnbreg totalgroups gsp gspsq ranney FL recession if year==2017
note: recession omitted because of collinearity
```

```
Random-effects negative binomial regression     Number of obs     =         49
Group variable: stateid                         Number of groups  =         49

Random effects u_i ~ Beta                       Obs per group:
                                                              min =          1
                                                              avg =        1.0
                                                              max =          1
```

```
                                  Wald chi2(4)      =     127.15
Log likelihood  = -351.60984                Prob > chi2       =     0.0000

------------------------------------------------------------------------------
 totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gsp |   .2243494   .0293591     7.64   0.000     .1668065    .2818923
       gspsq |  -.0054563   .0011787    -4.63   0.000    -.0077665   -.0031462
      ranney |   1.475005   .6383107     2.31   0.021     .2239394    2.726071
          FL |   .4755965   .3730516     1.27   0.202    -.2555712    1.206764
   recession |          0  (omitted)
       _cons |   5.276778   2.179543     2.42   0.015     1.004951    9.548604
-------------+----------------------------------------------------------------
       /ln_r |   3.017571   1.182699                      .6995245    5.335618
       /ln_s |   2.633366   .8443831                      .978406    4.288327
-------------+----------------------------------------------------------------
           r |   20.44158   24.17623                     2.012795    207.6009
           s |   13.92055   11.75428                     2.660212    72.84448
------------------------------------------------------------------------------
LR test vs. pooled: chibar2(01) = 0.00                Prob >= chibar2 = 1.000
```

****

FOR ENDNOTE 10:

AGRICULTURE

```
. gen agemploysq = agemploy * agemploy
```

```
. xtreg aggroups agemploy agemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0410                                         min =        10
     between = 0.7799                                         avg =      10.0
     overall = 0.7131                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
   aggroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    agemploy |   .0013993   .0005624     2.49   0.013     .0002971    .0025015
  agemploysq |  -9.91e-10   5.43e-10    -1.82   0.068    -2.05e-09    7.35e-11
      ranney |  -7.111027    5.29218    -1.34   0.179    -17.48351    3.261455
   recession |  -.9945285   .7581573    -1.31   0.190    -2.480489    .4914325
          FL |   31.10628   4.473022     6.95   0.000     22.33932    39.87324
       _cons |  -359.0181   137.9617    -2.60   0.009     -629.418   -88.61822
-------------+----------------------------------------------------------------
     sigma_u |  8.1703521
     sigma_e |  6.1429439
         rho |  .63885912   (fraction of variance due to u_i)
```

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

. xtpcse aggroups agemploy agemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.7461
Estimated autocorrelations =        0     Wald chi2(4)      =    982.22
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
    aggroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    agemploy |   .0028052   .0000979    28.64   0.000     .0026132    .0029971
  agemploysq |  -2.42e-09   9.87e-11   -24.52   0.000    -2.61e-09   -2.23e-09
      ranney |  -.7310315   3.696436    -0.20   0.843    -7.975913     6.51385
   recession |  -.8359572   1.629901    -0.51   0.608    -4.030504    2.358589
          FL |   22.77034   4.038635     5.64   0.000     14.85477    30.68592
       _cons |  -694.0203   23.94141   -28.99   0.000    -740.9447    -647.096
------------------------------------------------------------------------------

. mixed aggroups agemploy agemploysq ranney recession FL || stateid:
```

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1661.5934

Iteration 1: log likelihood = -1661.5934

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(4) = .

Log likelihood = -1661.5934 Prob > chi2 = .

aggroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
agemploy	.0013065	.000349	3.74	0.000	.0006224	.0019906
agemploysq	-8.96e-10	3.49e-10	-2.56	0.010	-1.58e-09	-2.11e-10
ranney	-7.123522	4.916005	-1.45	0.147	-16.75871	2.51167
recession	-1.010831	.9346664	-1.08	0.279	-2.842743	.8210817
FL	31.67887	9.436704	3.36	0.001	13.18327	50.17447

```
      _cons |  -337.2823   82.78966    -4.07   0.000     -499.547   -175.0175
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   77.32501   18.07127      48.9091    122.2504
-----------------------------+------------------------------------------------
               var(Residual) |   38.01897   2.590478     33.26615    43.45085
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 326.33        Prob >= chibar2 = 0.0000
```

COMMUNICATION

```
. gen commemploysq = commemploy * commemploy

. xtreg commgroups commemploy commemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0246                                         min =        10
     between = 0.6915                                         avg =      10.0
     overall = 0.5914                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .
```

(Std. Err. adjusted for 49 clusters in stateid)

```
------------------------------------------------------------------------------
             |               Robust
 commgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 commemploy |    .000251   .0000422     5.95   0.000     .0001684    .0003336
commemploysq |  -2.84e-10   6.07e-11    -4.68   0.000    -4.03e-10   -1.65e-10
     ranney |  -8.004831   6.729179    -1.19   0.234    -21.19378    5.184117
   recession |   .2175448   .8779499     0.25   0.804    -1.503205    1.938295
          FL |   30.95607   5.010536     6.18   0.000     21.1356    40.77654
       _cons |    22.6336   5.739295     3.94   0.000     11.38479    33.88241
-------------+----------------------------------------------------------------
     sigma_u |  10.568211
     sigma_e |  8.2290926
         rho |  .62254149   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse commgroups commemploy commemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.5947
```

Estimated autocorrelations = 0 Wald chi2(4) = 1695.37

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

commgroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---+---

commemploy | .0002676 9.87e-06 27.10 0.000 .0002482 .0002869

commemploysq | -3.35e-10 1.33e-11 -25.09 0.000 -3.61e-10 -3.09e-10

ranney | -3.439516 3.186039 -1.08 0.280 -9.684037 2.805005

recession | .1196836 1.073933 0.11 0.911 -1.985187 2.224554

FL | 30.47084 2.704837 11.27 0.000 25.16946 35.77222

_cons | 18.20267 2.630461 6.92 0.000 13.04706 23.35828

. mixed commgroups commemploy commemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1794.2698

Iteration 1: log likelihood = -1794.2698

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

```
                                        Obs per group:
                                                     min =        10
                                                     avg =      10.0
                                                     max =        10

                                        Wald chi2(4)      =         .
Log likelihood = -1794.2698             Prob > chi2       =         .

------------------------------------------------------------------------------
 commgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
 commemploy |   .0002516   .0000303     8.29   0.000     .0001921    .0003111
commemploysq |  -2.86e-10   5.70e-11    -5.02   0.000    -3.98e-10   -1.74e-10
     ranney |  -7.976612   6.473407    -1.23   0.218    -20.66426    4.711033
   recession |    .215709   1.238453     0.17   0.862    -2.211614    2.643032
          FL |   30.93477   10.80833     2.86   0.004     9.750843    52.11871
       _cons |   22.59479   5.939157     3.80   0.000     10.95426    34.23533
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   101.3751   21.97989      66.27899    155.0553
-----------------------------+------------------------------------------------
               var(Residual) |    67.2154   4.529627      58.89881    76.70629
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 310.71        Prob >= chibar2 = 0.0000
```

CONSTRUCTION

. gen constemploysq = constemploy * constemploy

. xtreg congroups conostemploy constemploysq ranney recession FL, robust

variable conostemploy not found

r(111);

. xtreg congroups constemploy constemploysq ranney recession FL, robust

Random-effects GLS regression Number of obs = 490

Group variable: stateid Number of groups = 49

R-sq: Obs per group:

within = 0.0511 min = 10

between = 0.6367 avg = 10.0

overall = 0.5491 max = 10

Wald chi2(4) = .

corr(u_i, X) = 0 (assumed) Prob > chi2 = .

(Std. Err. adjusted for 49 clusters in stateid)

| Robust

congroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

constemploy | .0002453 .0000545 4.50 0.000 .0001386 .0003521

constemploysq | -1.39e-10 3.48e-11 -4.00 0.000 -2.07e-10 -7.09e-11

ranney | -5.268033 8.620022 -0.61 0.541 -22.16297 11.6269

```
   recession |    .693814    1.40678     0.49   0.622    -2.063423    3.451051
          FL |   21.28631    14.2786     1.49   0.136    -6.699236    49.27186
       _cons |    11.029   8.213831     1.34   0.179    -5.069814    27.12781
-------------+----------------------------------------------------------------
     sigma_u |  21.298538
     sigma_e |  15.073528
         rho |  .66627756   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse congroups constemploy constemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.5555
Estimated autocorrelations =        0     Wald chi2(4)      =   2327.55
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
   congroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  constemploy |   .0002845   .0000121    23.49   0.000     .0002608    .0003083
constemploysq |  -1.87e-10   1.08e-11   -17.39   0.000    -2.08e-10   -1.66e-10
```

```
      ranney |  -16.30807   7.739297    -2.11   0.035    -31.47682   -1.139329
   recession |   .8126017   2.186715     0.37   0.710    -3.473281    5.098484
          FL |   18.06143    4.97093     3.63   0.000     8.318581    27.80427
       _cons |   16.71092   6.083203     2.75   0.006     4.788063    28.63378
------------------------------------------------------------------------------

. mixed congroups constemploy constemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood =  -2095.469
Iteration 1:   log likelihood =  -2095.469

Computing standard errors:

Mixed-effects ML regression                     Number of obs     =        490
Group variable: stateid                         Number of groups  =         49

                                                Obs per group:
                                                              min =         10
                                                              avg =       10.0
                                                              max =         10

                                                Wald chi2(4)      =          .
Log likelihood =  -2095.469                     Prob > chi2       =          .

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

```
   congroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 constemploy |    .000246   .0000282     8.71   0.000     .0001907    .0003014
constemploysq |  -1.40e-10   2.40e-11    -5.83   0.000    -1.87e-10   -9.28e-11
      ranney |  -5.314813   11.89426    -0.45   0.655    -28.62713    17.99751
   recession |   .6916013   2.295757     0.30   0.763    -3.807999    5.191202
          FL |   21.21144   22.07238     0.96   0.337    -22.04963     64.4725
       _cons |   10.99402   11.10688     0.99   0.322    -10.77507    32.76311
------------------------------------------------------------------------------

------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   418.9835   89.65673      275.4555    637.2977
-----------------------------+------------------------------------------------
               var(Residual) |   225.3221    15.1823      197.4465    257.1332
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 361.93        Prob >= chibar2 = 0.0000
```

GENERAL BUSINESS

```
. gen busemploysq = busemploy * busemploy

. xtreg busgroups busemploy busemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49
```

```
R-sq:                                 Obs per group:
     within  = 0.0192                         min =        10
     between = 0.8637                         avg =      10.0
     overall = 0.7835                         max =        10

                                      Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)          Prob > chi2       =         .

                        (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  busgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   busemploy |    .000097   .0000138     7.03   0.000     .0000699    .0001241
 busemploysq |  -4.01e-12   1.90e-12    -2.12   0.034    -7.72e-12   -2.95e-13
      ranney |  -48.43573   24.10127    -2.01   0.044    -95.67335   -1.198114
   recession |  -2.567948   4.018319    -0.64   0.523    -10.44371    5.307812
          FL |   76.97578   21.09543     3.65   0.000     35.6295    118.3221
       _cons |   71.63402   17.75275     4.04   0.000     36.83927    106.4288
-------------+----------------------------------------------------------------
     sigma_u |  35.853892
     sigma_e |  32.762733
         rho |  .54495846   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse busgroups busemploy busemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)
```

Group variable: stateid Number of obs = 490

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 10

avg = 10

max = 10

Estimated covariances = 1225 R-squared = 0.7845

Estimated autocorrelations = 0 Wald chi2(4) = 1523.80

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

busgroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---+---

busemploy | .0000941 4.32e-06 21.79 0.000 .0000856 .0001025

busemploysq | -3.28e-12 5.08e-13 -6.45 0.000 -4.27e-12 -2.28e-12

ranney | -13.56956 15.49239 -0.88 0.381 -43.93409 16.79497

recession | -3.081142 6.295287 -0.49 0.625 -15.41968 9.257394

FL | 80.00724 15.73567 5.08 0.000 49.16589 110.8486

_cons | 42.98529 12.34517 3.48 0.000 18.7892 67.18138

. mixed busgroups busemploy busemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -2463.8079

Iteration 1: log likelihood = -2463.8079

Computing standard errors:

Mixed-effects ML regression Number of obs = 490
Group variable: stateid Number of groups = 49

Obs per group:
min = 10
avg = 10.0
max = 10

Wald chi2(4) = .
Log likelihood = -2463.8079 Prob > chi2 = .

busgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
busemploy	.0000969	.0000123	7.88	0.000	.0000728 .000121
busemploysq	-3.97e-12	2.44e-12	-1.62	0.104	-8.76e-12 8.20e-13
ranney	-47.89516	25.26664	-1.90	0.058	-97.41686 1.626542
recession	-2.577149	4.931823	-0.52	0.601	-12.24334 7.089045
FL	76.99847	37.81772	2.04	0.042	2.877094 151.1198
_cons	71.21499	23.18236	3.07	0.002	25.77841 116.6516

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]

```
stateid: Identity           |
             var(_cons) |   1163.282   257.2423      754.145    1794.385
-----------------------------+------------------------------------------------
           var(Residual) |    1064.89   71.73201     933.1831    1215.185
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 238.18        Prob >= chibar2 = 0.0000
```

EDUCATION

```
. gen eduemploysq = eduemploy * eduemploy

. xtreg edugroups eduemploy eduemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0275                                         min =        10
     between = 0.8661                                         avg =      10.0
     overall = 0.8082                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  edugroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
```

```
  eduemploy |   .0002809   .0000398     7.06   0.000     .0002029     .000359
 eduemploysq |  -9.51e-11   3.07e-11    -3.10   0.002    -1.55e-10   -3.49e-11
     ranney |  -19.13903   10.86471    -1.76   0.078    -40.43347     2.1554
  recession |  -2.232235   1.462491    -1.53   0.127    -5.098665    .6341941
         FL |   108.9908   8.951565    12.18   0.000     91.44602    126.5355
      _cons |   29.42442   10.17475     2.89   0.004     9.48227    49.36656
------------+----------------------------------------------------------------
    sigma_u |  17.840396
    sigma_e |  13.858526
        rho |  .62366399   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

. xtpcse edugroups eduemploy eduemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

```
Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.8116
Estimated autocorrelations =        0     Wald chi2(4)      =    970.27
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
  edugroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
```

```
-------------+----------------------------------------------------------------
  eduemploy |   .0002791   9.89e-06    28.23   0.000     .0002597    .0002985
 eduemploysq |  -8.83e-11   9.96e-12    -8.87   0.000    -1.08e-10   -6.88e-11
     ranney |   14.86696   8.721805     1.70   0.088    -2.227458    31.96139
   recession |   -2.75292    5.27223    -0.52   0.602     -13.0863     7.58046
          FL |    110.92   12.17605     9.11   0.000      87.0554    134.7846
       _cons |   .0360768   7.340187     0.00   0.996    -14.35043    14.42258
------------------------------------------------------------------------------
```

. mixed edugroups eduemploy eduemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -2051.4619
Iteration 1: log likelihood = -2051.4619

Computing standard errors:

Mixed-effects ML regression Number of obs = 490
Group variable: stateid Number of groups = 49

Obs per group:
min = 10
avg = 10.0
max = 10

Wald chi2(4) = .

Log likelihood = -2051.4619 Prob > chi2 = .

---

edugroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
eduemploy	.0002812	.0000346	8.12	0.000	.0002133	.0003491
eduemploysq	-9.52e-11	3.87e-11	-2.46	0.014	-1.71e-10	-1.93e-11
ranney	-18.91019	10.8565	-1.74	0.082	-40.18854	2.368163
recession	-2.235155	2.094416	-1.07	0.286	-6.340134	1.869825
FL	108.9512	18.73228	5.82	0.000	72.23657	145.6658
_cons	29.1889	10.34072	2.82	0.005	8.92147	49.45634

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
stateid: Identity				
var(_cons)	300.8705	65.05432	196.9394	459.6494
var(Residual)	191.2762	12.8898	167.61	218.2841

LR test vs. linear model: chibar2(01) = 316.05 Prob >= chibar2 = 0.0000

ELECTRONICS

. gen elecemploysq = elecemploy * elecemploy

. xtreg elecgroups elecemploy elecemploysq ranney recession FL, robust

```
Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0102                                         min =        10
     between = 0.8306                                         avg =      10.0
     overall = 0.7424                                         max =        10

                                                Wald chi2(5)      =   4634.48
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  elecgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  elecemploy |   .0008821   .0001427     6.18   0.000     .0006024    .0011618
elecemploysq |  -3.08e-09   1.00e-09    -3.07   0.002    -5.04e-09   -1.12e-09
      ranney |  -14.65412   7.665812    -1.91   0.056    -29.67883    .3705958
   recession |  -1.313222   .9649799    -1.36   0.174    -3.204548    .5781033
          FL |   57.55619   3.77269     15.26   0.000     50.16185    64.95053
       _cons |   20.64802   7.219181     2.86   0.004     6.49868     34.79735
-------------+----------------------------------------------------------------
     sigma_u |    8.61786
     sigma_e |  7.3562626
         rho |  .57848801   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse elecgroups elecemploy elecemploysq ranney recession FL
```

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: stateid Number of obs = 490

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 10

avg = 10

max = 10

Estimated covariances = 1225 R-squared = 0.7612

Estimated autocorrelations = 0 Wald chi2(4) = 554.37

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

| Coef. Std. Err. z P>\|z\| [95% Conf. Interval]

elecemploy | .0012984 .0000689 18.84 0.000 .0011633 .0014335

elecemploysq | -5.42e-09 3.87e-10 -14.00 0.000 -6.18e-09 -4.66e-09

ranney | -17.8376 3.459078 -5.16 0.000 -24.61726 -11.05793

recession | -1.709129 2.521196 -0.68 0.498 -6.650582 3.232324

FL | 48.53672 4.165497 11.65 0.000 40.37249 56.70094

_cons | 17.69463 2.72595 6.49 0.000 12.35187 23.03739

. mixed elecgroups elecemploy elecemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1770.6981

Iteration 1: log likelihood = -1770.6981

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(5) = 167.24

Log likelihood = -1770.6981 Prob > chi2 = 0.0000

elecgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
elecemploy	.000862	.000122	7.07	0.000	.0006229	.0011012
elecemploysq	-2.97e-09	8.70e-10	-3.42	0.001	-4.68e-09	-1.27e-09
ranney	-14.60432	6.14022	-2.38	0.017	-26.63893	-2.569713
recession	-1.291357	1.187979	-1.09	0.277	-3.619752	1.037039
FL	57.99663	10.20576	5.68	0.000	37.99371	77.99955
_cons	20.88908	5.613812	3.72	0.000	9.886208	31.89195

```
------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   89.51626   25.07541      51.69662    155.0035
-----------------------------+------------------------------------------------
               var(Residual) |    61.2281   4.274947      53.39737    70.20721
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 234.65        Prob >= chibar2 = 0.0000
```

ENERGY

```
. gen energyemploysq = energyemploy * energyemploy

. xtreg energygroups energyemploy energyemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.1256                                         min =        10
     between = 0.8023                                         avg =      10.0
     overall = 0.7240                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                          (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
```

```
             |               Robust
 energygroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+----------------------------------------------------------------
 energyemploy |    .001861   .0003058     6.09   0.000     .0012617    .0024604
energyemploysq |  -1.25e-09   1.24e-09    -1.01   0.315    -3.68e-09    1.19e-09
      ranney |  -25.14626   16.29609    -1.54   0.123     -57.086    6.793485
   recession |  -1.061741   2.159752    -0.49   0.623    -5.294778    3.171296
          FL |   58.37603   7.884195     7.40   0.000     42.92329    73.82877
       _cons |   67.70645   15.64117     4.33   0.000     37.05032    98.36258
--------------+----------------------------------------------------------------
     sigma_u |  24.754187
     sigma_e |  19.674007
         rho |  .61287008   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse energygroups energyemploy energyemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.7276
Estimated autocorrelations =        0     Wald chi2(4)      =    486.42
Estimated coefficients    =        6     Prob > chi2       =    0.0000
```

```
------------------------------------------------------------------------------
             |         Panel-corrected
 energygroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
 energyemploy |   .0020609   .0001186    17.37   0.000     .0018283    .0022934
energyemploysq |  -2.82e-09   6.37e-10    -4.44   0.000    -4.07e-09   -1.58e-09
      ranney |  -11.59028   18.42658    -0.63   0.529    -47.70572    24.52516
   recession |  -1.475947   5.976019    -0.25   0.805    -13.18873    10.23683
          FL |   56.02643    4.88859    11.46   0.000     46.44497    65.60789
       _cons |   53.51322   15.55187     3.44   0.001     23.03212    83.99431
------------------------------------------------------------------------------
```

```
. mixed energygroups energyemploy energyemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -2221.6781
Iteration 1:   log likelihood = -2221.6781

Computing standard errors:

Mixed-effects ML regression                 Number of obs     =        490
Group variable: stateid                     Number of groups  =         49

                                            Obs per group:
                                                          min =         10
                                                          avg =       10.0
```

```
                                        max =        10

                                        Wald chi2(5)      =     257.92
Log likelihood = -2221.6781             Prob > chi2       =     0.0000

------------------------------------------------------------------------------
 energygroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
 energyemploy |   .0018637   .0002482     7.51   0.000     .0013773      .00235
energyemploysq |  -1.28e-09   1.16e-09    -1.11   0.267    -3.55e-09    9.83e-10
      ranney |  -24.98156   15.38335    -1.62   0.104    -55.13237    5.169249
   recession |  -1.069614   2.968494    -0.36   0.719    -6.887755    4.748528
          FL |   58.35003   25.27833     2.31   0.021     8.805419    107.8946
       _cons |   67.55684   14.51139     4.66   0.000     39.11504    95.99864
------------------------------------------------------------------------------

------------------------------------------------------------------------------
 Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
----------------------------+-------------------------------------------------
stateid: Identity           |
             var(_cons) |   567.8838   124.2381     369.8613    871.9269
----------------------------+-------------------------------------------------
          var(Residual) |   385.5391   26.00307     337.7989    440.0262
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 300.10       Prob >= chibar2 = 0.0000
```

ENTERTAINMENT

```
. gen enteremploysq = enteremploy * enteremploy
```

```
. xtreg entgroups enteremploy enteremploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.1027                                         min =        10
     between = 0.6756                                         avg =      10.0
     overall = 0.6234                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
    entgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
  enteremploy |    .000398   .0000987     4.03   0.000     .0002046    .0005914
enteremploysq |  -5.45e-10   2.59e-10    -2.11   0.035    -1.05e-09   -3.80e-11
       ranney |  -1.357812   4.413129    -0.31   0.758    -10.00739    7.291762
    recession |   .3660894   .4352928     0.84   0.400    -.4870689    1.219248
           FL |    11.69094   4.517392     2.59   0.010     2.837015    20.54487
        _cons |    6.143998    4.34525     1.41   0.157    -2.372535    14.66053
--------------+---------------------------------------------------------------
      sigma_u |  7.8421675
      sigma_e |  4.6284855
          rho |  .74165171   (fraction of variance due to u_i)
```

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

. xtpcse entgroups enteremploy enteremploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.6695
Estimated autocorrelations =        0     Wald chi2(4)      =    973.38
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
    entgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
  enteremploy |   .0006717   .0000323    20.80   0.000     .0006084     .000735
enteremploysq |  -1.98e-09   1.64e-10   -12.03   0.000    -2.30e-09   -1.65e-09
      ranney |  -4.414414   2.756897    -1.60   0.109    -9.817833    .9890047
   recession |   .9308274    .88842     1.05   0.295    -.8104437    2.672099
          FL |   3.867009    2.47789     1.56   0.119     -.989567    8.723584
       _cons |   4.524393   2.168827     2.09   0.037     .2735709    8.775215
------------------------------------------------------------------------------

. mixed entgroups enteremploy enteremploysq ranney recession FL || stateid:
```

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1532.179

Iteration 1: log likelihood = -1532.179

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(4) = .

Log likelihood = -1532.179 Prob > chi2 = .

entgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
enteremploy	.0003872	.0000512	7.56	0.000	.0002869	.0004876
enteremploysq	-4.97e-10	2.34e-10	-2.13	0.034	-9.56e-10	-3.88e-11
ranney	-1.36552	3.749075	-0.36	0.716	-8.713572	5.982531
recession	.3417154	.7115548	0.48	0.631	-1.052906	1.736337
FL	12.01429	8.77961	1.37	0.171	-5.193425	29.22201

```
      _cons |   6.333833   3.629047     1.75   0.081    -.7789694    13.44663
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
               var(_cons) |    70.7056   15.48273      46.03227    108.6039
-----------------------------+------------------------------------------------
            var(Residual) |   21.39455   1.449243      18.73457     24.4322
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 466.73        Prob >= chibar2 = 0.0000
```

FINANCE AND INSURANCE

```
. gen finemploysq = finemploy * finemploy

. xtreg fingroups finemploy finemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0246                                         min =        10
     between = 0.8793                                         avg =      10.0
     overall = 0.7415                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .
```

(Std. Err. adjusted for 49 clusters in stateid)

fingroups	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]
finemploy	.0008792	.0001077	8.17	0.000	.0006682 .0010902
finemploysq	-4.61e-10	2.15e-10	-2.15	0.032	-8.82e-10 -3.98e-11
ranney	-103.3428	79.74257	-1.30	0.195	-259.6354 52.94979
recession	-1.995587	6.326174	-0.32	0.752	-14.39466 10.40349
FL	154.5773	14.54139	10.63	0.000	126.0767 183.0779
_cons	126.8034	68.89996	1.84	0.066	-8.23802 261.8449

sigma_u	29.739073
sigma_e	41.081102
rho	.34385248 (fraction of variance due to u_i)

. xtpcse fingroups finemploy finemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: stateid Number of obs = 490
Time variable: year Number of groups = 49
Panels: correlated (balanced) Obs per group:
Autocorrelation: no autocorrelation min = 10
avg = 10
max = 10
Estimated covariances = 1225 R-squared = 0.7429

Estimated autocorrelations = 0 Wald chi2(4) = 365.91

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

fingroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---+---

finemploy | .0008399 .0001083 7.76 0.000 .0006277 .0010522

finemploysq | -3.55e-10 3.42e-10 -1.04 0.299 -1.03e-09 3.16e-10

ranney | -65.99569 18.0631 -3.65 0.000 -101.3987 -30.59267

recession | -2.54369 4.601733 -0.55 0.580 -11.56292 6.475541

FL | 157.53 18.2474 8.63 0.000 121.7657 193.2942

_cons | 96.17998 15.13352 6.36 0.000 66.51882 125.8411

. mixed fingroups finemploy finemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -2558.3263

Iteration 1: log likelihood = -2558.3263

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(4) = .

Log likelihood = -2558.3263 Prob > chi2 = .

fingroups	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
finemploy	.0008768	.0001157	7.58	0.000	.0006501	.0011036
finemploysq	-4.54e-10	2.37e-10	-1.92	0.055	-9.18e-10	1.06e-11
ranney	-102.2463	30.14552	-3.39	0.001	-161.3305	-43.1622
recession	-2.012196	6.195072	-0.32	0.745	-14.15431	10.12992
FL	154.6379	33.35957	4.64	0.000	89.25433	220.0214
_cons	125.9415	26.63325	4.73	0.000	73.74124	178.1417

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
stateid: Identity				
var(_cons)	805.5407	198.8725	496.5263	1306.871
var(Residual)	1683.712	113.4978	1475.329	1921.528

LR test vs. linear model: chibar2(01) = 103.13 Prob >= chibar2 = 0.0000

HEALTH

```
. gen healthemploysq = healthemploy * healthemploy

. xtreg healthgroups healthemploy healthemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.1449                                         min =        10
     between = 0.8637                                         avg =      10.0
     overall = 0.7950                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 healthgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
 healthemploy |   .0005166   .0000688     7.50   0.000     .0003817    .0006515
healthemploysq |  -1.51e-10   8.06e-11    -1.87   0.061    -3.09e-10    7.23e-12
       ranney |  -45.42733   20.70233    -2.19   0.028    -86.00315   -4.851501
    recession |  -1.354222   3.322771    -0.41   0.684    -7.866732    5.158289
           FL |   166.2799   17.81503     9.33   0.000     131.3631    201.1968
        _cons |   85.35512   19.25245     4.43   0.000     47.62101    123.0892
--------------+---------------------------------------------------------------
```

```
      sigma_u |  38.034078
      sigma_e |  31.749111
          rho |  .58933951   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse healthgroups healthemploy healthemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.7978
Estimated autocorrelations =        0     Wald chi2(4)      =   1328.73
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
 healthgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
 healthemploy |   .0005305     .00002    26.52   0.000     .0004913    .0005697
healthemploysq |  -1.95e-10   1.60e-11   -12.22   0.000    -2.26e-10   -1.64e-10
      ranney |  -32.47348   25.58462    -1.27   0.204    -82.61841    17.67145
   recession |  -1.873678   9.357316    -0.20   0.841    -20.21368    16.46632
          FL |    176.885    16.3783    10.80   0.000     144.7841    208.9859
       _cons |   75.89532   21.41821     3.54   0.000     33.91641    117.8742
```

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

. mixed healthgroups healthemploy healthemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood =  -2461.928
Iteration 1:   log likelihood =  -2461.928

Computing standard errors:

Mixed-effects ML regression                 Number of obs     =       490
Group variable: stateid                     Number of groups  =        49

                                            Obs per group:
                                                          min =        10
                                                          avg =      10.0
                                                          max =        10

                                            Wald chi2(4)      =         .
Log likelihood =  -2461.928                 Prob > chi2       =         .

------------------------------------------------------------------------------
 healthgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------+---------------------------------------------------------------
 healthemploy |   .0005164   .0000572     9.03   0.000     .0004044    .0006285
healthemploysq |  -1.53e-10   5.24e-11    -2.92   0.003    -2.56e-10   -5.04e-11
```

```
      ranney |  -45.35102   25.18179    -1.80   0.072    -94.70642     4.00438
   recession |  -1.381714   4.875819    -0.28   0.777    -10.93814    8.174715
          FL |   167.1907   40.15042     4.16   0.000     88.49728     245.884
       _cons |   85.58096   23.51277     3.64   0.000     39.49677    131.6651
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   1348.846   303.5339      867.7902    2096.574
-----------------------------+------------------------------------------------
               var(Residual) |   1040.165   70.31141      911.0959    1187.519
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 267.43        Prob >= chibar2 = 0.0000
```

LAW

```
. gen lawemploysq = lawemploy * lawemploy

. xtreg lawgroups lawemploy lawemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0170                                         min =        10
     between = 0.4880                                         avg =      10.0
     overall = 0.4383                                         max =        10
```

```
                                  Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)      Prob > chi2       =         .

                       (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  lawgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  lawemploy |   .0012524   .0003522     3.56   0.000     .0005622    .0019427
 lawemploysq |  -4.76e-09   2.08e-09    -2.29   0.022    -8.83e-09   -6.91e-10
     ranney |   2.599299   10.85407     0.24   0.811    -18.67428    23.87288
  recession |   .9214268   1.388028     0.66   0.507    -1.799058    3.641912
         FL |   10.60851   13.47215     0.79   0.431    -15.79642    37.01345
      _cons |   6.172009   9.978168     0.62   0.536    -13.38484    25.72886
-------------+----------------------------------------------------------------
    sigma_u |  21.382947
    sigma_e |   10.91034
        rho |  .79343649   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse lawgroups lawemploy lawemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
```

```
                                        avg =        10
                                        max =        10
Estimated covariances      =      1225        R-squared       =     0.4864
Estimated autocorrelations =         0        Wald chi2(4)    =    1360.88
Estimated coefficients     =         6        Prob > chi2     =     0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
  lawgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  lawemploy |   .0017601   .0000654    26.91   0.000     .0016319    .0018883
 lawemploysq |  -9.18e-09   4.00e-10   -22.95   0.000    -9.96e-09   -8.39e-09
     ranney |  -18.58258   6.560522    -2.83   0.005    -31.44097   -5.724196
  recession |   1.348975   1.726535     0.78   0.435    -2.034971    4.732921
         FL |   7.424642   4.589686     1.62   0.106    -1.570977    16.42026
      _cons |    18.5557   5.631999     3.29   0.001     7.517185    29.59422
------------------------------------------------------------------------------

. mixed lawgroups lawemploy lawemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood =  -1958.626
Iteration 1:   log likelihood =  -1958.626

Computing standard errors:
```

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(5) = 54.04

Log likelihood = -1958.626 Prob > chi2 = 0.0000

lawgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
lawemploy	.0012495	.0002486	5.03	0.000	.0007622	.0017368
lawemploysq	-4.73e-09	1.63e-09	-2.91	0.004	-7.92e-09	-1.54e-09
ranney	2.611268	8.806667	0.30	0.767	-14.64948	19.87202
recession	.9205174	1.655524	0.56	0.578	-2.32425	4.165285
FL	10.60481	23.42751	0.45	0.651	-35.31227	56.5219
_cons	6.192005	9.202668	0.67	0.501	-11.84489	24.2289

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
stateid: Identity				
var(_cons)	466.5055	103.2442	302.3249	719.846
var(Residual)	120.0594	8.147728	105.1066	137.1394

LR test vs. linear model: chibar2(01) = 552.15 Prob >= chibar2 = 0.0000

LEISURE

. gen leisureemploysq = leisureemploy * leisureemploy

. xtreg leisuregroups leisureemploy leisureemploysq ranney recession FL, robust

Random-effects GLS regression Number of obs = 490

Group variable: stateid Number of groups = 49

R-sq: Obs per group:

within = 0.0575 min = 10

between = 0.7213 avg = 10.0

overall = 0.6410 max = 10

Wald chi2(4) = .

corr(u_i, X) = 0 (assumed) Prob > chi2 = .

(Std. Err. adjusted for 49 clusters in stateid)

| Robust

leisuregroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---+---

leisureemploy | .000171 .000032 5.34 0.000 .0001083 .0002337

leisureemploysq | -5.34e-11 1.25e-11 -4.27 0.000 -7.80e-11 -2.89e-11

ranney | -4.339075 10.27023 -0.42 0.673 -24.46836 15.79021

recession | -1.046955 1.747762 -0.60 0.549 -4.472505 2.378595

```
          FL |   40.73419   16.59505     2.45   0.014     8.208479     73.2599
       _cons |   12.94204   9.756045     1.33   0.185    -6.179459    32.06354
-------------+----------------------------------------------------------------
     sigma_u |  20.772042
     sigma_e |   14.42938
         rho |  .67451622   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse leisuregroups leisureemploy leisureemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.6425
Estimated autocorrelations =        0     Wald chi2(4)      =    896.29
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
 leisuregroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 leisureemploy |     .00016   6.66e-06    24.04   0.000     .0001469     .000173
leisureemploysq |  -5.05e-11   4.16e-12   -12.15   0.000    -5.86e-11   -4.23e-11
       ranney |   10.29153   10.79845     0.95   0.341    -10.87305    31.45611
```

```
     recession |  -1.260706   2.658181    -0.47   0.635    -6.470645    3.949232
            FL |   47.09033   6.648224     7.08   0.000     34.06005    60.12061
         _cons |   2.979394   8.824017     0.34   0.736    -14.31536    20.27415
------------------------------------------------------------------------------

. mixed leisuregroups leisureemploy leisureemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -2077.9822
Iteration 1:   log likelihood = -2077.9822

Computing standard errors:

Mixed-effects ML regression                   Number of obs     =       490
Group variable: stateid                       Number of groups  =        49

                                              Obs per group:
                                                            min =        10
                                                            avg =      10.0
                                                            max =        10

                                              Wald chi2(4)      =         .
Log likelihood = -2077.9822                   Prob > chi2       =         .

------------------------------------------------------------------------------
 leisuregroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
```

```
----------------+----------------------------------------------------------------
 leisureemploy |     .00017   .0000221     7.68   0.000     .0001266    .0002134
leisureemploysq |  -5.32e-11   1.35e-11    -3.94   0.000    -7.96e-11   -2.67e-11
       ranney |  -4.201087    11.5143    -0.36   0.715     -26.7687    18.36653
     recession |  -1.048953   2.187243    -0.48   0.632     -5.33587    3.237965
            FL |   41.21179   21.80842     1.89   0.059    -1.531924    83.95551
         _cons |   13.05069    10.9214     1.19   0.232    -8.354853    34.45624
------------------------------------------------------------------------------


------------------------------------------------------------------------------
 Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
              var(_cons) |   391.6803   84.09533      257.1433    596.6066
-----------------------------+------------------------------------------------
           var(Residual) |   209.7126   14.13614      183.7585    239.3324
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 366.39        Prob >= chibar2 = 0.0000
```

REAL ESTATE

```
. gen realemploysq = realemploy * realemploy

. xtreg realgroups realemploy realemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
```

```
    within  = 0.0027                        min =        10
    between = 0.5004                        avg =      10.0
    overall = 0.3881                        max =        10

                                    Wald chi2(5)      =    1933.46
corr(u_i, X)   = 0 (assumed)                Prob > chi2       =     0.0000

                        (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  realgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  realemploy |   .0026951   .0009109     2.96   0.003     .0009098    .0044803
realemploysq |  -6.42e-08   4.51e-08    -1.42   0.154    -1.53e-07    2.42e-08
      ranney |  -10.22438   8.001885    -1.28   0.201    -25.90779    5.459026
   recession |   3.133266   1.958795     1.60   0.110    -.7059019    6.972433
          FL |   69.54236   28.21043     2.47   0.014     14.25093    124.8338
       _cons |   20.45162   7.517675     2.72   0.007     5.717251     35.186
-------------+----------------------------------------------------------------
     sigma_u |  16.711886
     sigma_e |  14.026793
         rho |  .58669076   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse realgroups realemploy realemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
```

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 10

avg = 10

max = 10

Estimated covariances = 1225 R-squared = 0.4720

Estimated autocorrelations = 0 Wald chi2(5) = 279.59

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

realgroups | Coef. Std. Err. z P>|z| [95% Conf. Interval]

realemploy | .0042179 .0005273 8.00 0.000 .0031845 .0052513

realemploysq | -4.71e-08 2.58e-08 -1.83 0.068 -9.77e-08 3.48e-09

ranney | -28.07707 6.638127 -4.23 0.000 -41.08756 -15.06658

recession | 2.611228 2.682201 0.97 0.330 -2.645789 7.868245

FL | 7.581385 14.87211 0.51 0.610 -21.56741 36.73018

_cons | 27.80499 5.298564 5.25 0.000 17.41999 38.18998

. mixed realgroups realemploy realemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -2077.7937

Iteration 1: log likelihood = -2077.7937

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(5) = 21.55

Log likelihood = -2077.7937 Prob > chi2 = 0.0006

realgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
realemploy	.0019275	.0008429	2.29	0.022	.0002755	.0035796
realemploysq	-5.37e-08	2.82e-08	-1.91	0.057	-1.09e-07	1.53e-09
ranney	-8.909229	11.41816	-0.78	0.435	-31.28841	13.46995
recession	3.345778	2.178099	1.54	0.125	-.9232176	7.614774
FL	80.31269	26.1518	3.07	0.002	29.0561	131.5693
_cons	22.38517	10.54304	2.12	0.034	1.721182	43.04915

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
stateid: Identity				

```
             var(_cons) |   447.1771   129.4775      253.524    788.7512
----------------------------+----------------------------------------------
          var(Residual) |   206.6312    14.5707     179.9588    237.2569
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 263.01        Prob >= chibar2 = 0.0000
```

SOCIAL SERVICES

```
. gen socemploysq = socemploy * socemploy

. xtreg socgroups socemploy socemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0508                                         min =        10
     between = 0.7038                                         avg =      10.0
     overall = 0.6396                                         max =        10

                                                Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =         .

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
  socgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  socemploy |   .0011979   .0002777     4.31   0.000     .0006535    .0017422
```

```
 socemploysq |  -2.36e-09   6.81e-10    -3.47   0.001    -3.69e-09   -1.03e-09
      ranney |  -25.09139   13.66461    -1.84   0.066    -51.87353    1.690753
   recession |  -1.213015   1.511118    -0.80   0.422    -4.174752    1.748723
          FL |   68.99129   17.50956     3.94   0.000     34.67319    103.3094
       _cons |   28.58344   9.831623     2.91   0.004     9.313809    47.85306
-------------+----------------------------------------------------------------
     sigma_u |  27.601705
     sigma_e |  16.735742
         rho |  .73118866   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. xtpcse socgroups socemploy socemploysq ranney recession FL

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   stateid                 Number of obs     =       490
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        10
                                                            avg =        10
                                                            max =        10
Estimated covariances     =      1225     R-squared         =    0.6420
Estimated autocorrelations =        0     Wald chi2(4)      =    486.01
Estimated coefficients    =        6     Prob > chi2       =    0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
  socgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
```

```
  socemploy |   .0011254   .0000532    21.16   0.000     .0010211    .0012296
 socemploysq |  -1.98e-09   2.32e-10    -8.53   0.000    -2.44e-09   -1.53e-09
     ranney |  -31.57169   14.87533    -2.12   0.034     -60.7268   -2.416582
  recession |  -1.068875   2.523503    -0.42   0.672     -6.01485      3.8771
         FL |   70.26833   10.15697     6.92   0.000     50.36103    90.17563
      _cons |   35.65069   12.63844     2.82   0.005      10.8798    60.42159
------------------------------------------------------------------------------
```

```
. mixed socgroups socemploy socemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -2153.4992
Iteration 1:   log likelihood = -2153.4992

Computing standard errors:

Mixed-effects ML regression                 Number of obs     =        490
Group variable: stateid                     Number of groups  =         49

                                            Obs per group:
                                                          min =         10
                                                          avg =       10.0
                                                          max =         10

                                            Wald chi2(4)      =          .
Log likelihood = -2153.4992                 Prob > chi2       =          .
```

```
------------------------------------------------------------------------------
  socgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+-----------------------------------------------------------------
  socemploy |   .0011964   .0001379     8.68   0.000     .0009262    .0014666
 socemploysq |  -2.35e-09   4.41e-10    -5.32   0.000    -3.21e-09   -1.48e-09
     ranney |  -25.10384    13.3468    -1.88   0.060    -51.26308    1.055398
  recession |  -1.210267   2.519758    -0.48   0.631    -6.148902    3.728367
         FL |    68.9979   27.78816     2.48   0.013     14.53411    123.4617
      _cons |   28.60564   12.92018     2.21   0.027     3.28255    53.92873
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
              var(_cons) |   688.9141   145.3255      455.6226    1041.657
-----------------------------+------------------------------------------------
           var(Residual) |   277.7941   18.71503      243.4319    317.0068
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 448.64        Prob >= chibar2 = 0.0000
```

TRANSPORTATION

```
. gen transemploysq = transemploy * transemploy

. xtreg transgroups transemploy transemploysq ranney recession FL, robust

Random-effects GLS regression                   Number of obs     =       490
```

```
Group variable: stateid                    Number of groups  =        49

R-sq:                                      Obs per group:
     within  = 0.0299                                         min =        10
     between = 0.7808                                         avg =      10.0
     overall = 0.6904                                         max =        10

                                           Wald chi2(4)      =         .
corr(u_i, X)   = 0 (assumed)               Prob > chi2       =         .

                          (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
             |               Robust
 transgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 transemploy |    .000199   .0000368     5.40   0.000     .0001268    .0002711
transemploysq |  -8.45e-11   4.16e-11    -2.03   0.042    -1.66e-10   -3.05e-12
      ranney |  -11.76295   8.163761    -1.44   0.150    -27.76363    4.237727
   recession |   -2.86417    1.11135    -2.58   0.010    -5.042375   -.6859647
          FL |   28.00378   6.230162     4.49   0.000     15.79288    40.21467
       _cons |   24.84691   7.294292     3.41   0.001     10.55036    39.14346
-------------+----------------------------------------------------------------
     sigma_u |  13.986774
     sigma_e |   11.28431
         rho |  .60572986   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. xtpcse transgroups transemploy transemploysq ranney recession FL
```

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: stateid Number of obs = 490

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 10

avg = 10

max = 10

Estimated covariances = 1225 R-squared = 0.6906

Estimated autocorrelations = 0 Wald chi2(4) = 230.94

Estimated coefficients = 6 Prob > chi2 = 0.0000

| Panel-corrected

| Coef. Std. Err. z P>\|z\| [95% Conf. Interval]

transgroups

transemploy | .0001923 .0000148 12.97 0.000 .0001632 .0002214

transemploysq | -7.61e-11 1.47e-11 -5.17 0.000 -1.05e-10 -4.72e-11

ranney | -9.425571 7.957813 -1.18 0.236 -25.0226 6.171456

recession | -2.884885 3.440359 -0.84 0.402 -9.627864 3.858093

FL | 28.8126 6.292726 4.58 0.000 16.47909 41.14612

_cons | 23.4482 6.330417 3.70 0.000 11.04081 35.85559

. mixed transgroups transemploy transemploysq ranney recession FL || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -1946.6925

Iteration 1: log likelihood = -1946.6925

Computing standard errors:

Mixed-effects ML regression Number of obs = 490

Group variable: stateid Number of groups = 49

Obs per group:

min = 10

avg = 10.0

max = 10

Wald chi2(4) = .

Log likelihood = -1946.6925 Prob > chi2 = .

transgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
transemploy	.0001985	.0000258	7.70	0.000	.000148	.000249
transemploysq	-8.40e-11	2.88e-11	-2.91	0.004	-1.40e-10	-2.75e-11
ranney	-11.73375	8.78788	-1.34	0.182	-28.95768	5.490182
recession	-2.863616	1.700424	-1.68	0.092	-6.196385	.4691536
FL	28.05098	14.3825	1.95	0.051	-.1382066	56.24017
_cons	24.86286	8.178917	3.04	0.002	8.832476	40.89324

```
 Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
                  var(_cons) |   174.7624   37.89548      114.2545    267.3145
-----------------------------+------------------------------------------------
               var(Residual) |   126.2211   8.500873      110.6125    144.0322
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 293.29        Prob >= chibar2 = 0.0000
```

MODELS WITH PER CAPITA INCOME REFERENCED IN ENDNOTE 11:

```
. xtreg adjgroupgsp c.percapita c.percapita#c.percapita ranney FL recession, cluster(stateid)

Random-effects GLS regression                   Number of obs     =       588
Group variable: stateid                         Number of groups  =        49

R-sq:                                           Obs per group:
     within  = 0.0502                                         min =        12
     between = 0.0187                                         avg =      12.0
     overall = 0.0196                                         max =        12

                                                Wald chi2(5)      =     14.75
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0115

                                (Std. Err. adjusted for 49 clusters in stateid)
------------------------------------------------------------------------------
                     |               Robust
          adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
```

```
------------------------+----------------------------------------------------------------
          percapita |   .0045179   .0042435     1.06   0.287    -.0037992     .012835
                    |
c.percapita#c.percapita |  -8.61e-08   5.42e-08    -1.59   0.112    -1.92e-07    2.01e-08
                    |
             ranney |  -.1723364   109.9165    -0.00   0.999    -215.6047     215.26
                 FL |  -111.9506   43.48561    -2.57   0.010    -197.1809   -26.72041
          recession |   39.23673   13.73155     2.86   0.004     12.32339    66.15007
              _cons |   486.0114   146.3084     3.32   0.001     199.2523    772.7706
------------------------+----------------------------------------------------------------
             sigma_u |  289.68052
             sigma_e |  106.20156
                 rho |  .88151751   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

. xtpcse adjgroupgsp c.percapita c.percapita#c.percapita ranney FL recession

Linear regression, correlated panels corrected standard errors (PCSEs)

```
Group variable:   stateid                 Number of obs     =       588
Time variable:    year                    Number of groups  =        49
Panels:           correlated (balanced)   Obs per group:
Autocorrelation:  no autocorrelation                        min =        12
                                                            avg =        12
                                                            max =        12
Estimated covariances     =      1225     R-squared         =    0.0284
Estimated autocorrelations =        0     Wald chi2(5)      =     65.33
Estimated coefficients    =        6     Prob > chi2       =    0.0000
```

```
------------------------------------------------------------------------------
             |         Panel-corrected
adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   percapita |  -.0022454   .0055627    -0.40   0.686    -.0131481    .0086572
             |
c.percapita#c.percapita |  -3.18e-08   7.18e-08    -0.44   0.657    -1.72e-07    1.09e-07
             |
      ranney |  -233.8441   94.82639    -2.47   0.014    -419.7004   -47.98783
          FL |  -129.2677   17.39977    -7.43   0.000    -163.3706   -95.16475
   recession |   62.01157   42.86685     1.45   0.148    -22.00592    146.0291
       _cons |   847.4873   132.0081     6.42   0.000     588.7563    1106.218
------------------------------------------------------------------------------
```

```
. mixed adjgroupgsp c.percapita c.percapita#c.percapita ranney FL recession || stateid:

Mixed-effects ML regression                   Number of obs     =        588
Group variable: stateid                       Number of groups  =         49

                                              Obs per group:
                                                            min =         12
                                                            avg =       12.0
                                                            max =         12

                                              Wald chi2(5)      =      29.18
Log likelihood = -3684.0688                   Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
        adjgroupgsp |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
--------------------+---------------------------------------------------------
         percapita |   .0045103   .0030198     1.49   0.135    -.0014084    .0104291
                   |
c.percapita#c.percapita |  -8.60e-08   3.71e-08    -2.32   0.020    -1.59e-07   -1.33e-08
                   |
            ranney |  -.5674048   75.74215    -0.01   0.994    -149.0193    147.8845
                FL |  -111.9773   283.6988    -0.39   0.693    -668.0167    444.0621
         recession |    39.2646   16.52515     2.38   0.017     6.87591     71.6533
             _cons |   486.5292   93.79481     5.19   0.000     302.6948    670.3636
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
              var(_cons) |   77889.09   15928.66     52167.76    116292.3
-----------------------------+------------------------------------------------
           var(Residual) |   11195.33   681.9738     9935.398    12615.04
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 995.84        Prob >= chibar2 = 0.0000


. xtpcse totalgroups c.percapita c.percapita#c.percapita ranney FL recession


Linear regression, correlated panels corrected standard errors (PCSEs)


Group variable:   stateid                 Number of obs     =       588
Time variable:    year                    Number of groups  =        49
```

```
Panels:          correlated (balanced)       Obs per group:
Autocorrelation:  no autocorrelation                    min =        12
                                                        avg =        12
                                                        max =        12
Estimated covariances      =      1225        R-squared       =     0.1870
Estimated autocorrelations =         0        Wald chi2(5)    =     601.91
Estimated coefficients     =         6        Prob > chi2     =     0.0000

------------------------------------------------------------------------------
             |         Panel-corrected
  totalgroups |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    percapita |   .0178798   .0159463     1.12   0.262    -.0133744     .049134
              |
c.percapita#c.percapita |  -9.15e-08   2.04e-07    -0.45   0.654    -4.92e-07    3.09e-07
              |
       ranney |   520.6625   182.7413     2.85   0.004     162.4961     878.829
           FL |   2437.344   99.61042    24.47   0.000     2242.111    2632.577
    recession |  -103.4718   113.0723    -0.92   0.360    -325.0893    118.1458
        _cons |   104.2362   377.3385     0.28   0.782    -635.3337     843.806
------------------------------------------------------------------------------

. mixed totalgroups c.percapita c.percapita#c.percapita ranney FL recession || stateid:


Computing standard errors:

Mixed-effects ML regression                     Number of obs     =        588
Group variable: stateid                         Number of groups  =         49
```

Obs per group:

min = 12

avg = 12.0

max = 12

Wald chi2(5) = 20.52

Log likelihood = -4081.9772 Prob > chi2 = 0.0010

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
percapita	-.0064824	.0057994	-1.12	0.264	-.0178491	.0048842
c.percapita#c.percapita	8.02e-08	7.13e-08	1.12	0.261	-5.96e-08	2.20e-07
ranney	-392.9623	145.8678	-2.69	0.007	-678.8579	-107.0668
FL	2366.153	731.5459	3.23	0.001	932.3494	3799.957
recession	-12.20876	31.72482	-0.38	0.700	-74.38826	49.97074
_cons	1497.313	193.4007	7.74	0.000	1118.254	1876.371

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
stateid: Identity				
var(_cons)	520724.4	105934.3	349496.3	775842.1
var(Residual)	41253.21	2512.998	36610.49	46484.68

LR test vs. linear model: chibar2(01) = 1272.20 Prob >= chibar2 = 0.0000

ESTIMATES FOR MODELS REFERENCED IN ENDNOTE 16:

. xtpcse ig adjpop adjpopsq ranney FL percapitaspending recession adjpercapitadebt

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: stateid Number of obs = 588

Time variable: year Number of groups = 49

Panels: correlated (balanced) Obs per group:

Autocorrelation: no autocorrelation min = 12

avg = 12

max = 12

Estimated covariances = 1225 R-squared = 0.7508

Estimated autocorrelations = 0 Wald chi2(7) = 16346.54

Estimated coefficients = 8 Prob > chi2 = 0.0000

| Panel-corrected

ig | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---+---

adjpop | 43.95992 1.144646 38.40 0.000 41.71646 46.20339

adjpopsq | -.4721505 .0471199 -10.02 0.000 -.5645037 -.3797972

ranney | 132.9874 51.52477 2.58 0.010 32.00072 233.9741

FL | 94.95058 27.24892 3.48 0.000 41.54368 148.3575

percapitaspending | -4.018495 3.506123 -1.15 0.252 -10.89037 2.85338

```
      recession |  -4.976829   17.90483    -0.28   0.781    -40.06965    30.11599
adjpercapitadebt |   .0154747   .0015045    10.29   0.000     .0125258    .0184235
        _cons |   15.69336   41.36031     0.38   0.704    -65.37135    96.75808
------------------------------------------------------------------------------
```

. xtpoisson ig adjpop adjpopsq ranney FL percapitaspending recession adjpercapitadebt, nolog

```
Random-effects Poisson regression               Number of obs     =        588
Group variable: stateid                         Number of groups  =         49

Random effects u_i ~ Gamma                      Obs per group:
                                                              min =         12
                                                              avg =       12.0
                                                              max =         12

                                                Wald chi2(7)      =     298.48
Log likelihood  = -5086.3065                    Prob > chi2       =     0.0000

------------------------------------------------------------------------------
          ig |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       adjpop |   .1295903    .009367    13.83   0.000     .1112314    .1479492
      adjpopsq |  -.0021561    .000185   -11.66   0.000    -.0025186   -.0017936
       ranney |  -.2606863   .0390977    -6.67   0.000    -.3373164   -.1840562
          FL |  -.1496183   .3092894    -0.48   0.629    -.7558143    .4565777
percapitaspending |   .0644943   .0059796    10.79   0.000     .0527746     .076214
      recession |  -.0073451   .0074072    -0.99   0.321    -.0218628    .0071727
adjpercapitadebt |  -5.88e-06   4.02e-06    -1.46   0.143    -.0000138    1.99e-06
        _cons |   5.400346   .0744581    72.53   0.000     5.254411    5.546281
```

```
-------------+----------------------------------------------------------------
      /lnalpha |  -2.426223   .202003                -2.822141   -2.030304
-------------+----------------------------------------------------------------
         alpha |    .08837   .017851                  .0594784    .1312956
------------------------------------------------------------------------------
LR test of alpha=0: chibar2(01) = 1.6e+04            Prob >= chibar2 = 0.000

. mixed ig adjpop adjpopsq ranney FL percapitaspending recession adjpercapitadebt || stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -3351.7203
Iteration 1:   log likelihood = -3351.7203

Computing standard errors:

Mixed-effects ML regression                 Number of obs     =        588
Group variable: stateid                     Number of groups  =         49

                                            Obs per group:
                                                          min =         12
                                                          avg =       12.0
                                                          max =         12

                                            Wald chi2(7)      =     189.17
Log likelihood = -3351.7203                 Prob > chi2       =     0.0000
```

```
------------------------------------------------------------------------------
          ig |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       adjpop |   51.31196   5.668034     9.05   0.000     40.20282     62.4211
      adjpopsq |  -.7382479   .1546681    -4.77   0.000    -1.041392   -.4351041
       ranney |  -62.51885   44.16367    -1.42   0.157    -149.078    24.04035
          FL |   70.78869   118.7127     0.60   0.551    -161.8839    303.4613
percapitaspending |   19.37645   5.644357     3.43   0.001     8.313715    30.43919
     recession |  -3.341607   9.318118    -0.36   0.720    -21.60478    14.92157
 adjpercapitadebt |   .0055265   .0038214     1.45   0.148    -.0019632    .0130163
        _cons |   140.3397   48.23735     2.91   0.004     45.79619    234.8831
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
             var(_cons) |   12154.94   2566.042     8036.278    18384.46
-----------------------------+------------------------------------------------
          var(Residual) |   3856.928   235.3285     3422.204    4346.875
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 611.00        Prob >= chibar2 = 0.0000
```

MODELS FOR ESTIMATES REFERENCED IN ENDNOTE 20:

```
. mixed totalgroups adjpop adjpopsq ranney percapitarevenue badegreespercapita adjberry1
adjdebtpercapita || stateid:
```

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -4019.0734

Iteration 1: log likelihood = -4019.0734

Computing standard errors:

Mixed-effects ML regression Number of obs = 588

Group variable: stateid Number of groups = 49

Obs per group:

min = 12

avg = 12.0

max = 12

Wald chi2(7) = 299.78

Log likelihood = -4019.0734 Prob > chi2 = 0.0000

totalgroups	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
adjpop	151.1563	16.27555	9.29	0.000	119.2568	183.0558
adjpopsq	-1.432783	.4597757	-3.12	0.002	-2.333927	-.5316392
ranney	-240.5578	138.4001	-1.74	0.082	-511.8171	30.70137
percapitarevenue	200.5892	119.876	1.67	0.094	-34.36355	435.5419
badegreespercapita	526.1445	98.7669	5.33	0.000	332.565	719.7241
adjberry1	85.47856	53.57575	1.60	0.111	-19.52798	190.4851

```
 adjdebtpercapita |   4787.411   11985.45     0.40   0.690    -18703.65    28278.47
         _cons |   44.13015   156.1042     0.28   0.777    -261.8285    350.0888
------------------------------------------------------------------------------


------------------------------------------------------------------------------
  Random-effects Parameters  |   Estimate   Std. Err.     [95% Conf. Interval]
-----------------------------+------------------------------------------------
stateid: Identity            |
              var(_cons) |   104997.6   22533.95       68944.5    159903.9
-----------------------------+------------------------------------------------
           var(Residual) |    37705.6   2303.428      33450.77    42501.63
------------------------------------------------------------------------------
LR test vs. linear model: chibar2(01) = 578.97        Prob >= chibar2 = 0.0000

. mixed ig adjpop adjpopsq ranney percapitarevenue badegreespercapita adjberry1 adjdebtpercapita ||
stateid:

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = -3337.2755
Iteration 1:   log likelihood = -3337.2755

Computing standard errors:

Mixed-effects ML regression                   Number of obs     =        588
Group variable: stateid                       Number of groups  =         49
```

Obs per group:

min = 12

avg = 12.0

max = 12

Wald chi2(7) = 246.02

Log likelihood = -3337.2755 Prob > chi2 = 0.0000

ig	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
adjpop	50.231	5.138528	9.78	0.000	40.15967	60.30233
adjpopsq	-.6659775	.1450141	-4.59	0.000	-.9501998	-.3817551
ranney	-28.52933	43.39137	-0.66	0.511	-113.5748	56.51619
percapitarevenue	68.69103	37.59223	1.83	0.068	-4.988376	142.3704
badegreespercapita	181.2872	31.01299	5.85	0.000	120.5028	242.0715
adjberry1	38.0725	16.79866	2.27	0.023	5.14773	70.99727
adjdebtpercapita	-1977.804	3765.064	-0.53	0.599	-9357.194	5401.586
_cons	51.08414	49.07686	1.04	0.298	-45.10473	147.273

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
stateid: Identity				
var(_cons)	10500.18	2225.341	6931.038	15907.24
var(Residual)	3703.638	225.9968	3286.155	4174.16

LR test vs. linear model: chibar2(01) = 585.34 Prob >= chibar2 = 0.0000