```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
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Notes:
      1.  Unicode is supported; see help unicode_advice.
      2.  Maximum number of variables is set to 5000; see help set_maxvar.

. doedit "C:\Users\pcg180000\Documents\BUAN 6312.004\Project\Project-Guns.do"

. do "C:\Users\PCG180~1\AppData\Local\Temp\16\STD33a4_000000.tmp"

. clear all

. set more off

. use "C:\Users\pcg180000\Documents\BUAN 6312.004\Project\guns.dta",clear

. xtset stateid year
       panel variable:  stateid (strongly balanced)
        time variable:  year, 77 to 99
                delta:  1 unit

.
. gen lnvio = ln(vio)

.
end of do-file

. do "C:\Users\PCG180~1\AppData\Local\Temp\16\STD33a4_000000.tmp"

. gen lnrob = ln(rob)

.
end of do-file

. do "C:\Users\PCG180~1\AppData\Local\Temp\16\STD33a4_000000.tmp"

. gen lnmur = ln(mur)

.
end of do-file
```

```
. do "C:\Users\PCG180~1\AppData\Local\Temp\16\STD33a4_000000.tmp"

. xtreg lnmur i.shall incarc_rate avginc density pop pb1064 pw1064 pm1029, fe

Fixed-effects (within) regression               Number of obs      =       1,173
Group variable: stateid                         Number of groups   =          51

R-sq:                                           Obs per group:
     within  = 0.1528                                         min =          23
     between = 0.2221                                         avg =        23.0
     overall = 0.1846                                         max =          23

                                                F(8,1114)          =       25.12
corr(u_i, Xb)  = -0.8961                        Prob > F           =      0.0000

------------------------------------------------------------------------------
       lnmur |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     1.shall |    -.06081   .0257579    -2.36   0.018    -.1113495   -.0102704
 incarc_rate |    -.00036   .0001278    -2.82   0.005    -.0006107   -.0001093
      avginc |   .0243114   .0080663     3.01   0.003     .0084846    .0401382
     density |  -.6707132   .1160957    -5.78   0.000     -.898504   -.4429224
         pop |  -.0257054   .0119103    -2.16   0.031    -.0490745   -.0023363
      pb1064 |   .0307009   .0242419     1.27   0.206    -.0168641    .0782658
      pw1064 |   .0103313    .006928     1.49   0.136     -.003262    .0239246
      pm1029 |   .0392384   .0087427     4.49   0.000     .0220844    .0563923
       _cons |   .4600088   .5253095     0.88   0.381    -.5706989    1.490716
-------------+----------------------------------------------------------------
     sigma_u |    1.36035
     sigma_e |   .21942693
         rho |   .97464151   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(50, 1114) = 72.66                     Prob > F = 0.0000

. estimates store fe_mur

. xtreg lnmur i.shall incarc_rate avginc density pop pb1064 pw1064 pm1029, re

Random-effects GLS regression                   Number of obs      =       1,173
Group variable: stateid                         Number of groups   =          51

R-sq:                                           Obs per group:
     within  = 0.0813                                         min =          23
     between = 0.4921                                         avg =        23.0
     overall = 0.4381                                         max =          23

                                                Wald chi2(8)       =      169.92
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =      0.0000

------------------------------------------------------------------------------
       lnmur |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     1.shall |  -.1153705   .0268844    -4.29   0.000    -.1680629    -.062678
 incarc_rate |   .0004438   .0000925     4.80   0.000     .0002625     .000625
      avginc |   .0093982   .0081589     1.15   0.249    -.0065929    .0253893
     density |   .0163429   .0381659     0.43   0.669    -.0584609    .0911467
         pop |   .0029126   .0072821     0.40   0.689      -.01136    .0171851
      pb1064 |   .0512656   .0168244     3.05   0.002     .0182903    .0842409
      pw1064 |   .0069318   .0071688     0.97   0.334    -.0071188    .0209824
      pm1029 |   .0734716   .0084037     8.74   0.000     .0570007    .0899426
       _cons |  -.3301384    .536504    -0.62   0.538    -1.381667    .7213902
-------------+----------------------------------------------------------------
     sigma_u |   .30755149
     sigma_e |   .21942693
         rho |   .66267693   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. estimates store re_mur

. hausman fe_mur re_mur
```

	Coefficients (b) fe_mur	(B) re_mur	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
1.shall	-.06081	-.1153705	.0545605	.
incarc_rate	-.00036	.0004438	-.0008037	.0000882
avginc	.0243114	.0093982	.0149132	.
density	-.6707132	.0163429	-.6870561	.1096429
pop	-.0257054	.0029126	-.0286179	.0094248
pb1064	.0307009	.0512656	-.0205648	.017453
pw1064	.0103313	.0069318	.0033995	.
pm1029	.0392384	.0734716	-.0342333	.0024109

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       91.44
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)

.
end of do-file

.
```