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

                                                        User: all results

      ___  ____  ____  ____  ____ (R)
     /__    /   ____/   /   ____/
    ___/   /   /___/   /   /___/   13.0  Copyright 1985-2013 StataCorp LP
      Statistics/Data Analysis           StataCorp
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                                         979-696-4601 (fax)

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                         IDRE-UCLA

  Notes:
        1.  (/v# option or -set maxvar-) 5000 maximum variables

1 . import excel "C:\Users\pddes\Desktop\final dataset.xlsx", sheet("Sheet1") firstrow

2 . drop country_code region life_exp60 age519thinness age519obesity doctors hospitals une_infant
  > _poverty une_literacy une_school

3 . encode country, generate(country_num)

4 . reg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio dip
  > ni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, robust

  Linear regression                               Number of obs =     267
                                                  F( 29,   237) =  955.67
                                                  Prob > F      =  0.0000
                                                  R-squared     =  0.9913
                                                  Root MSE      =  .63637

------------------------------------------------------------------------------
             |               Robust
 life_expect |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
adult_mortal~y |  -.0391463   .001237   -31.65   0.000    -.0415832   -.0367094
 infant_mort |  -57.04562   5.858204    -9.74   0.000    -68.58643   -45.50482
   age14mort |  -391.1312   22.23581   -17.59   0.000    -434.9363   -347.3261
     alcohol |  -.0506935   .0236454    -2.14   0.033    -.0972755   -.0041114
         bmi |   .0347688   .0671954     0.52   0.605    -.0976077    .1671453
   hepatitis |  -.0002311   .0048254    -0.05   0.962    -.0097373     .009275
     measles |   .0378015   .0073396     5.15   0.000     .0233424    .0522606
       polio |   .0093874   .0080746     1.16   0.246    -.0065197    .0252945
  diphtheria |  -.0390938   .0095323    -4.10   0.000    -.0578725    -.020315
 basic_water |  -.0192125   .0045363    -4.24   0.000    -.0281491   -.0102759
  gni_capita |   .0001725   .0000275     6.28   0.000     .0001184    .0002266
       gghed |   .0142624   .1016273     0.14   0.889    -.1859459    .2144707
    che_gdp |   .0320352   .0293691     1.09   0.276    -.0258226    .0898931
    une_pop |  -4.53e-06   2.94e-06    -1.54   0.124    -.0000103    1.25e-06
    une_hiv |   .0090508   .0211237     0.43   0.669    -.0325634    .0506651
une_edu_spend |  -.0109588   .0373884    -0.29   0.770    -.0846148    .0626973

       year |
       2001 |   .1772603    .265289     0.67   0.505    -.3453654    .6998859
       2002 |   .1426948   .2658899     0.54   0.592    -.3811146    .6665042
       2003 |   .6084032   .3212701     1.89   0.059    -.0245067    1.241313
       2004 |   .2864754   .2692746     1.06   0.288     -.244002    .8169529
       2005 |   .2362729   .2553344     0.93   0.356     -.266742    .7392879
       2006 |   .0799409   .2440405     0.33   0.744    -.4008247    .5607065
       2007 |   .0045365   .2600996     0.02   0.986     -.507866    .5169389
       2008 |  -.0051892   .2340478    -0.02   0.982    -.4662691    .4558906
       2009 |  -.2429115    .251301    -0.97   0.335    -.7379804    .2521575
       2010 |  -.1957549   .2337883    -0.84   0.403    -.6563235    .2648137
       2011 |  -.2472215   .2396041    -1.03   0.303    -.7192473    .2248044
       2012 |  -.3957654   .2356194    -1.68   0.094    -.8599412    .0684105
       2013 |  -.3609707   .2391229    -1.51   0.132    -.8320486    .1101071

      _cons |    77.5201   1.467073    52.84   0.000     74.62993    80.41027
------------------------------------------------------------------------------
```

5 . vif

Variable	VIF	1/VIF
adult_mort~y	**9.67**	**0.103460**
infant_mort	**10.19**	**0.098131**
age14mort	**5.29**	**0.188872**
alcohol	**1.95**	**0.512220**
bmi	**5.80**	**0.172295**
hepatitis	**4.21**	**0.237796**
measles	**6.20**	**0.161339**
polio	**12.46**	**0.080261**
diphtheria	**15.10**	**0.066234**
basic_water	**5.34**	**0.187191**
gni_capita	**3.77**	**0.265559**
gghed	**4.27**	**0.234114**
che_gdp	**2.25**	**0.444246**
une_pop	**1.72**	**0.580239**
une_hiv	**10.02**	**0.099800**
une_edu_sp~d	**2.27**	**0.440094**
year		
2001	**2.27**	**0.441436**
2002	**3.59**	**0.278352**
2003	**3.80**	**0.262989**
2004	**5.56**	**0.179739**
2005	**5.59**	**0.179048**
2006	**5.53**	**0.180731**
2007	**4.97**	**0.201279**
2008	**7.06**	**0.141693**
2009	**6.33**	**0.158048**
2010	**8.59**	**0.116468**
2011	**7.64**	**0.130816**
2012	**7.65**	**0.130755**
2013	**8.33**	**0.120061**
Mean VIF	**6.12**	

6 . xtset country_num year
panel variable: **country_num (strongly balanced)**
time variable: **year, 2000 to 2016**
delta: **1 unit**

7 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio d
> gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9951** — Obs per group: min = **1**
between = **0.9073** — avg = **6.4**
overall = **0.9211** — max = **14**

F(**29,196**) = **1383.20**
corr(u_i, Xb) = **0.1761** — Prob > F = **0.0000**

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	**-.0366065**	**.0005594**	**-65.44**	**0.000**	**-.0377097**	**-.0355033**
infant_mort	**-26.60035**	**6.532259**	**-4.07**	**0.000**	**-39.48288**	**-13.71781**
age14mort	**-262.1415**	**20.09092**	**-13.05**	**0.000**	**-301.7636**	**-222.5194**
alcohol	**.0331265**	**.0218891**	**1.51**	**0.132**	**-.0100419**	**.0762948**
bmi	**-.3097668**	**.1735787**	**-1.78**	**0.076**	**-.6520885**	**.0325548**
hepatitis	**-.0014569**	**.0014951**	**-0.97**	**0.331**	**-.0044056**	**.0014917**
measles	**.0080317**	**.0030561**	**2.63**	**0.009**	**.0020045**	**.0140589**
polio	**.0035602**	**.0033918**	**1.05**	**0.295**	**-.0031289**	**.0102492**
diphtheria	**-.0063406**	**.0043407**	**-1.46**	**0.146**	**-.0149011**	**.00222**
basic_water	**.0126259**	**.0075453**	**1.67**	**0.096**	**-.0022545**	**.0275063**
gni_capita	**.0001014**	**.0000299**	**3.39**	**0.001**	**.0000425**	**.0001604**
gghed	**-.0996824**	**.0408122**	**-2.44**	**0.015**	**-.1801697**	**-.019195**

che_gdp	-.001486	.0187129	-0.08	0.937	-.0383905	.0354185
une_pop	.0000326	.0000109	3.00	0.003	.0000112	.000054
une_hiv	-.077693	.0259939	-2.99	0.003	-.1289566	-.0264295
une_edu_spend	.0246279	.0169412	1.45	0.148	-.0087825	.0580382
year						
2001	.2575777	.1180729	2.18	0.030	.0247212	.4904341
2002	.2318143	.1190652	1.95	0.053	-.002999	.4666275
2003	.3582495	.1297587	2.76	0.006	.1023471	.614152
2004	.4208476	.1409075	2.99	0.003	.1429582	.698737
2005	.5370579	.1624007	3.31	0.001	.2167807	.8573351
2006	.5918498	.178129	3.32	0.001	.2405542	.9431453
2007	.6790128	.2010247	3.38	0.001	.2825637	1.075462
2008	.7257928	.2145185	3.38	0.001	.302732	1.148854
2009	.863362	.2362467	3.65	0.000	.3974501	1.329274
2010	.9864384	.2527535	3.90	0.000	.4879728	1.484904
2011	1.103553	.2693749	4.10	0.000	.5723074	1.634798
2012	1.192061	.2864791	4.16	0.000	.6270837	1.757038
2013	1.297566	.3066325	4.23	0.000	.6928432	1.902289
_cons	78.9707	3.945848	20.01	0.000	71.18893	86.75247
sigma_u	1.813119					
sigma_e	.16794208					
rho	.9914934	(fraction of variance due to u_i)				

F test that all u_i=0: F(**41, 196**) = **78.22** Prob > F = **0.0000**

```
8 . estimates store fixed

9 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio d
  >  gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, re
```

Random-effects GLS regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9945** — Obs per group: min = **1**
between = **0.9710** — avg = **6.4**
overall = **0.9770** — max = **14**

Wald chi2(**29**) = **34259.74**
corr(u_i, X) = **0** (assumed) — Prob > chi2 = **0.0000**

life_expect	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
adult_mortality	-.0367473	.0005869	-62.61	0.000	-.0378977	-.0355969
infant_mort	-46.72141	5.656429	-8.26	0.000	-57.80781	-35.63502
age14mort	-251.6298	20.16094	-12.48	0.000	-291.1445	-212.1151
alcohol	.0297945	.0219973	1.35	0.176	-.0133195	.0729084
bmi	.0522557	.0961174	0.54	0.587	-.1361309	.2406422
hepatitis	.000793	.0015858	0.50	0.617	-.0023152	.0039012
measles	.0077148	.0033219	2.32	0.020	.0012039	.0142256
polio	.0029301	.0037417	0.78	0.434	-.0044035	.0102636
diphtheria	-.0059338	.004713	-1.26	0.208	-.0151712	.0033036
basic_water	.0152528	.0064772	2.35	0.019	.0025578	.0279479
gni_capita	.000171	.0000204	8.37	0.000	.0001309	.0002111
gghed	-.0608023	.0422937	-1.44	0.151	-.1436965	.0220919
che_gdp	-.0094213	.0190691	-0.49	0.621	-.046796	.0279534
une_pop	.0000169	6.35e-06	2.66	0.008	4.43e-06	.0000293
une_hiv	-.0406736	.0190754	-2.13	0.033	-.0780607	-.0032865
une_edu_spend	.0154658	.0181257	0.85	0.394	-.0200599	.0509914
year						
2001	.1695223	.1285819	1.32	0.187	-.0824937	.4215382
2002	.0522818	.1201522	0.44	0.663	-.1832121	.2877758
2003	.1206096	.1215702	0.99	0.321	-.1176637	.3588829
2004	.1027582	.1214996	0.85	0.398	-.1353766	.340893
2005	.1212911	.1277709	0.95	0.342	-.1291352	.3717174
2006	.089081	.1300071	0.69	0.493	-.1657282	.3438902
2007	.0968158	.1357676	0.71	0.476	-.1692839	.3629155
2008	.0804158	.1377548	0.58	0.559	-.1895787	.3504103

2009	.1228245	.1442592	0.85	0.395	-.1599184	.4055673
2010	.1750432	.1488098	1.18	0.239	-.1166186	.466705
2011	.2237979	.1545468	1.45	0.148	-.0791083	.5267041
2012	.2518732	.1608845	1.57	0.117	-.0634546	.5672011
2013	.2946065	.1682947	1.75	0.080	-.035245	.624458
_cons	72.13171	2.127231	33.91	0.000	67.96241	76.301
sigma_u	.767408					
sigma_e	.16794208					
rho	.95429647	(fraction of variance due to u_i)				

```
10 .
11 . estimates store random

12 . hausman fixed random
```

Note: the rank of the differenced variance matrix (**24**) does not equal the number of coefficient
be sure this is what you expect, or there may be problems computing the test. Examine
estimators for anything unexpected and possibly consider scaling your variables so that
on a similar scale.

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
adult_mort~y	-.0366065	-.0367473	.0001408	.
infant_mort	-26.60035	-46.72141	20.12107	3.267296
age14mort	-262.1415	-251.6298	-10.51171	.
alcohol	.0331265	.0297945	.003332	.
bmi	-.3097668	.0522557	-.3620225	.1445372
hepatitis	-.0014569	.000793	-.0022499	.
measles	.0080317	.0077148	.0003169	.
polio	.0035602	.0029301	.0006301	.
diphtheria	-.0063406	-.0059338	-.0004068	.
basic_water	.0126259	.0152528	-.0026269	.0038701
gni_capita	.0001014	.000171	-.0000696	.0000218
gghed	-.0996824	-.0608023	-.0388801	.
che_gdp	-.001486	-.0094213	.0079353	.
une_pop	.0000326	.0000169	.0000157	8.80e-06
une_hiv	-.077693	-.0406736	-.0370194	.0176581
une_edu_sp~d	.0246279	.0154658	.0091621	.
2001bn.year	.2575777	.1695223	.0880554	.
2002.year	.2318143	.0522818	.1795324	.
2003.year	.3582495	.1206096	.2376399	.0453651
2004.year	.4208476	.1027582	.3180894	.0713636
2005.year	.5370579	.1212911	.4157668	.1002427
2006.year	.5918498	.089081	.5027687	.1217707
2007.year	.6790128	.0968158	.582197	.14825
2008.year	.7257928	.0804158	.645377	.1644439
2009.year	.863362	.1228245	.7405375	.1870877
2010.year	.9864384	.1750432	.8113952	.2043036
2011.year	1.103553	.2237979	.8797548	.2206311
2012.year	1.192061	.2518732	.9401877	.2370368
2013.year	1.297566	.2946065	1.002959	.2563209

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(**24**) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= **-19.25** chi2<0 ==> model fitted on these
data fails to meet the asymptotic
assumptions of the Hausman test;
see suest for a generalized test

```
13 . hausman fixed random, sigmamore

   Note: the rank of the differenced variance matrix (13) does not equal the number of coefficient
         be sure this is what you expect, or there may be problems computing the test.  Examine
         estimators for anything unexpected and possibly consider scaling your variables so that
         on a similar scale.
```

	——— Coefficients ———			
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
adult_mort~y	-.0366065	-.0367473	.0001408	.0002069
infant_mort	-26.60035	-46.72141	20.12107	4.563038
age14mort	-262.1415	-251.6298	-10.51171	9.651912
alcohol	.0331265	.0297945	.003332	.0104487
bmi	-.3097668	.0522557	-.3620225	.1674967
hepatitis	-.0014569	.000793	-.0022499	.0005021
measles	.0080317	.0077148	.0003169	.0007251
polio	.0035602	.0029301	.0006301	.0004893
diphtheria	-.0063406	-.0059338	-.0004068	.0010533
basic_water	.0126259	.0152528	-.0026269	.0053399
gni_capita	.0001014	.000171	-.0000696	.0000262
gghed	-.0996824	-.0608023	-.0388801	.0165204
che_gdp	-.001486	-.0094213	.0079353	.0083551
une_pop	.0000326	.0000169	.0000157	.0000103
une_hiv	-.077693	-.0406736	-.0370194	.0217364
une_edu_sp~d	.0246279	.0154658	.0091621	.0051677
2001bn.year	.2575777	.1695223	.0880554	.0268851
2002.year	.2318143	.0522818	.1795324	.0557748
2003.year	.3582495	.1206096	.2376399	.0778559
2004.year	.4208476	.1027582	.3180894	.0990648
2005.year	.5370579	.1212911	.4157668	.1277488
2006.year	.5918498	.089081	.5027687	.1495754
2007.year	.6790128	.0968158	.582197	.177727
2008.year	.7257928	.0804158	.645377	.1948946
2009.year	.863362	.1228245	.7405375	.2197107
2010.year	.9864384	.1750432	.8113952	.2386006
2011.year	1.103553	.2237979	.8797548	.2567722
2012.year	1.192061	.2518732	.9401877	.2751381
2013.year	1.297566	.2946065	1.002959	.2967443

```
                    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(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                           =       58.27
                Prob>chi2 =      0.0000

14 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio d
   >  gni_capita gghed che_gdp une_pop une_hiv une_gni une_edu_spend i.year, fe
variable une_gni not found
r(111);

15 .
16 . testparm i.year

 ( 1)  2001.year = 0
 ( 2)  2002.year = 0
 ( 3)  2003.year = 0
 ( 4)  2004.year = 0
 ( 5)  2005.year = 0
 ( 6)  2006.year = 0
 ( 7)  2007.year = 0
 ( 8)  2008.year = 0
 ( 9)  2009.year = 0
 (10)  2010.year = 0
 (11)  2011.year = 0
 (12)  2012.year = 0
 (13)  2013.year = 0
```

```
          chi2( 13) =   15.12
        Prob > chi2 =    0.2996
```

```
17 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio d
   >  gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9951                         Obs per group: min =         1
       between = 0.9073                                        avg =       6.4
       overall = 0.9211                                        max =        14

                                                F(29,196)          =   1383.20
corr(u_i, Xb)  = 0.1761                         Prob > F           =    0.0000
```

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0366065	.0005594	-65.44	0.000	-.0377097	-.0355033
infant_mort	-26.60035	6.532259	-4.07	0.000	-39.48288	-13.71781
age14mort	-262.1415	20.09092	-13.05	0.000	-301.7636	-222.5194
alcohol	.0331265	.0218891	1.51	0.132	-.0100419	.0762948
bmi	-.3097668	.1735787	-1.78	0.076	-.6520885	.0325548
hepatitis	-.0014569	.0014951	-0.97	0.331	-.0044056	.0014917
measles	.0080317	.0030561	2.63	0.009	.0020045	.0140589
polio	.0035602	.0033918	1.05	0.295	-.0031289	.0102492
diphtheria	-.0063406	.0043407	-1.46	0.146	-.0149011	.00222
basic_water	.0126259	.0075453	1.67	0.096	-.0022545	.0275063
gni_capita	.0001014	.0000299	3.39	0.001	.0000425	.0001604
gghed	-.0996824	.0408122	-2.44	0.015	-.1801697	-.019195
che_gdp	-.001486	.0187129	-0.08	0.937	-.0383905	.0354185
une_pop	.0000326	.0000109	3.00	0.003	.0000112	.000054
une_hiv	-.077693	.0259939	-2.99	0.003	-.1289566	-.0264295
une_edu_spend	.0246279	.0169412	1.45	0.148	-.0087825	.0580382
year						
2001	.2575777	.1180729	2.18	0.030	.0247212	.4904341
2002	.2318143	.1190652	1.95	0.053	-.002999	.4666275
2003	.3582495	.1297587	2.76	0.006	.1023471	.614152
2004	.4208476	.1409075	2.99	0.003	.1429582	.698737
2005	.5370579	.1624007	3.31	0.001	.2167807	.8573351
2006	.5918498	.178129	3.32	0.001	.2405542	.9431453
2007	.6790128	.2010247	3.38	0.001	.2825637	1.075462
2008	.7257928	.2145185	3.38	0.001	.302732	1.148854
2009	.863362	.2362467	3.65	0.000	.3974501	1.329274
2010	.9864384	.2527535	3.90	0.000	.4879728	1.484904
2011	1.103553	.2693749	4.10	0.000	.5723074	1.634798
2012	1.192061	.2864791	4.16	0.000	.6270837	1.757038
2013	1.297566	.3066325	4.23	0.000	.6928432	1.902289
_cons	78.9707	3.945848	20.01	0.000	71.18893	86.75247
sigma_u	1.813119					
sigma_e	.16794208					
rho	.9914934	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(41, 196) =    78.22                 Prob > F = 0.0000
```

```
18 .
```

```
19 . testparm i.year

 ( 1)  2001.year = 0
 ( 2)  2002.year = 0
 ( 3)  2003.year = 0
 ( 4)  2004.year = 0
 ( 5)  2005.year = 0
 ( 6)  2006.year = 0
 ( 7)  2007.year = 0
 ( 8)  2008.year = 0
 ( 9)  2009.year = 0
 (10)  2010.year = 0
 (11)  2011.year = 0
 (12)  2012.year = 0
 (13)  2013.year = 0

       F( 13,   196) =    2.63
            Prob > F =    0.0021

20 . vif
   not appropriate after regress, nocons;
   use option uncentered to get uncentered VIFs
   r(301);

21 . vif, uncentered

    Variable |       VIF       1/VIF
-------------+----------------------
adult_mort~y |     86.80    0.011521
 infant_mort |     81.42    0.012282
   age14mort |     24.30    0.041147
     alcohol |      4.54    0.220085
         bmi |    334.71    0.002988
   hepatitis |    107.77    0.009279
     measles |    228.29    0.004380
       polio |    500.67    0.001997
  diphtheria |    576.31    0.001735
 basic_water |     67.84    0.014741
  gni_capita |      6.58    0.152052
       gghed |     18.47    0.054155
      che_gdp |     18.33    0.054554
      une_pop |      3.06    0.326800
      une_hiv |     11.31    0.088456
une_edu_sp~d |     12.61    0.079328
        year |
        2001 |      2.24    0.446628
        2002 |      3.56    0.280750
        2003 |      3.79    0.263927
        2004 |      5.73    0.174430
        2005 |      5.77    0.173421
        2006 |      5.78    0.172996
        2007 |      5.06    0.197635
        2008 |      7.50    0.133339
        2009 |      6.62    0.150970
        2010 |      9.38    0.106661
        2011 |      8.18    0.122265
        2012 |      8.25    0.121281
        2013 |      9.06    0.110384
-------------+----------------------
    Mean VIF |     74.62
```

```
22 . predict u_hat, e
(515 missing values generated)

23 . swilk u_hat

                    Shapiro-Wilk W test for normal data

    Variable |     Obs       W           V         z       Prob>z
-------------+--------------------------------------------------
       u_hat |     267    0.97308      5.173     3.836     0.00006

24 . gen sqrt_LE = sqrt( life_expect)

25 .
26 . gen log_LE = log( life_expect)

27 .
28 . gen inv_LE = 1/ life_expect

29 . ssc install xttest3
checking xttest3 consistency and verifying not already installed...
all files already exist and are up to date.

30 .
31 . xttest3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (42)  =    2.9e+27
Prob>chi2 =     0.0000


32 . xtreg log_LE adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio diphth
> capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9973                         Obs per group: min =         1
       between = 0.9754                                        avg =       6.4
       overall = 0.9794                                        max =        14

                                                F(29,196)          =   2486.98
corr(u_i, Xb)  = 0.1498                         Prob > F           =    0.0000

------------------------------------------------------------------------------
      log_LE |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
adult_mortality |  -.0006968   7.47e-06   -93.22   0.000    -.0007115    -.000682
  infant_mort |  -.9479058   .0872851   -10.86   0.000    -1.120044   -.7757672
    age14mort |  -4.496836   .2684582   -16.75   0.000    -5.026274   -3.967399
      alcohol |   .0005507   .0002925     1.88   0.061    -.0000261    .0011276
          bmi |  -.0045675   .0023194    -1.97   0.050    -.0091417    6.66e-06
    hepatitis |  -.0000119     .00002    -0.59   0.553    -.0000513    .0000275
      measles |   .0000206   .0000408     0.51   0.614    -.0000599    .0001012
        polio |   5.96e-06   .0000453     0.13   0.895    -.0000834    .0000953
   diphtheria |   .0000231    .000058     0.40   0.691    -.0000913    .0001375
  basic_water |   .0001735   .0001008     1.72   0.087    -.0000253    .0003723
   gni_capita |   1.29e-06   3.99e-07     3.22   0.001     4.99e-07    2.07e-06
        gghed |  -.0014252   .0005453    -2.61   0.010    -.0025007   -.0003497
      che_gdp |   .0002314     .00025     0.93   0.356    -.0002617    .0007245
      une_pop |  -3.89e-07   1.45e-07    -2.68   0.008    -6.75e-07   -1.03e-07
      une_hiv |   .0006991   .0003473     2.01   0.046     .0000141    .0013841
  une_edu_spend |   .0001923   .0002264     0.85   0.397    -.0002542    .0006387

         year |
         2001 |   .0011037   .0015777     0.70   0.485    -.0020078    .0042151
         2002 |    .000427    .001591     0.27   0.789    -.0027106    .0035646
         2003 |    .001452   .0017339     0.84   0.403    -.0019674    .0048714
```

2004	.002449	.0018828	1.30	0.195	-.0012643	.0061622
2005	.0034542	.00217	1.59	0.113	-.0008254	.0077338
2006	.003975	.0023802	1.67	0.097	-.0007191	.0086691
2007	.0051442	.0026861	1.92	0.057	-.0001532	.0104416
2008	.0053054	.0028664	1.85	0.066	-.0003476	.0109585
2009	.0055802	.0031568	1.77	0.079	-.0006454	.0118058
2010	.0067754	.0033773	2.01	0.046	.0001148	.013436
2011	.0075568	.0035994	2.10	0.037	.0004582	.0146554
2012	.0080158	.003828	2.09	0.038	.0004665	.0155651
2013	.0084839	.0040973	2.07	0.040	.0004034	.0165643
_cons	4.46931	.0527251	84.77	0.000	4.365329	4.573292
sigma_u	.0159384					
sigma_e	.00224407					
rho	.9805617	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 196) = 73.72 Prob > F = 0.0000

```
33 .
34 . predict e_of_logLE, e
(515 missing values generated)

35 .
36 . swilk e_of_logLE
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e_of_logLE	267	0.96393	6.933	4.519	0.00000

```
37 .
38 . xttest3
```

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (42) = 13846.81
Prob>chi2 = 0.0000

```
39 . xtreg inv_LE adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio diphth
> capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe
```

Fixed-effects (within) regression Number of obs = 267
Group variable: **country_num** Number of groups = 42

R-sq: within = 0.9923 Obs per group: min = 1
between = 0.8769 avg = 6.4
overall = 0.9023 max = 14

F(29,196) = 873.86
corr(u_i, Xb) = -0.3757 Prob > F = 0.0000

inv_LE	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	.0000134	2.29e-07	58.50	0.000	.0000129	.0000138
infant_mort	.0256917	.0026692	9.63	0.000	.0204276	.0309559
age14mort	.0765434	.0082097	9.32	0.000	.0603528	.092734
alcohol	-9.48e-06	8.94e-06	-1.06	0.291	-.0000271	8.16e-06
bmi	.0000751	.0000709	1.06	0.291	-.0000648	.000215
hepatitis	-3.80e-08	6.11e-07	-0.06	0.950	-1.24e-06	1.17e-06
measles	2.05e-06	1.25e-06	1.64	0.103	-4.15e-07	4.51e-06
polio	9.94e-07	1.39e-06	0.72	0.474	-1.74e-06	3.73e-06
diphtheria	-3.15e-06	1.77e-06	-1.77	0.078	-6.64e-06	3.52e-07
basic_water	-2.52e-06	3.08e-06	-0.82	0.415	-8.60e-06	3.56e-06
gni_capita	-1.71e-08	1.22e-08	-1.40	0.163	-4.12e-08	6.98e-09
gghed	.000018	.0000167	1.08	0.281	-.0000149	.0000509

che_gdp	-8.55e-06	7.65e-06	-1.12	0.265	-.0000236	6.53e-06
une_pop	2.69e-08	4.43e-09	6.06	0.000	1.81e-08	3.56e-08
une_hiv	-.0000508	.0000106	-4.78	0.000	-.0000717	-.0000298
une_edu_spend	2.27e-06	6.92e-06	0.33	0.743	-.0000114	.0000159
year						
2001	.0000452	.0000482	0.94	0.350	-.00005	.0001403
2002	.0000621	.0000487	1.28	0.203	-.0000338	.0001581
2003	.0000638	.000053	1.20	0.230	-.0000407	.0001684
2004	.0000476	.0000576	0.83	0.410	-.000066	.0001611
2005	.000047	.0000664	0.71	0.480	-.0000839	.0001778
2006	.0000462	.0000728	0.64	0.526	-.0000973	.0001898
2007	.0000316	.0000821	0.38	0.701	-.0001304	.0001936
2008	.0000384	.0000877	0.44	0.662	-.0001345	.0002112
2009	.0000716	.0000965	0.74	0.459	-.0001188	.000262
2010	.0000664	.0001033	0.64	0.521	-.0001373	.0002701
2011	.0000746	.0001101	0.68	0.499	-.0001425	.0002917
2012	.0000852	.0001171	0.73	0.467	-.0001456	.0003161
2013	.0001009	.0001253	0.81	0.422	-.0001462	.000348
_cons	.0089981	.0016124	5.58	0.000	.0058182	.0121779
sigma_u	.0006507					
sigma_e	.00006863					
rho	.98899983	(fraction of variance due to u_i)				

F test that all u_i=0: F(**41, 196**) = **33.53** Prob > F = **0.0000**

```
40 .
41 . predict e_of_invLE, e
(515 missing values generated)

42 .
43 . swilk e_of_invLE
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e_of_invLE	**267**	**0.96350**	**7.015**	**4.547**	**0.00000**

```
44 . xtreg sqrt_LE adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio dipht
> _capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe
```

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9971** — Obs per group: min = **1**
between = **0.9612** — avg = **6.4**
overall = **0.9669** — max = **14**

F(**29,196**) = **2294.75**
corr(u_i, Xb) = **0.2667** — Prob > F = **0.0000**

sqrt_LE	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0025226	.000029	-86.91	0.000	-.0025799	-.0024654
infant_mort	-2.655343	.3389315	-7.83	0.000	-3.323764	-1.986922
age14mort	-17.18273	1.042433	-16.48	0.000	-19.23856	-15.12691
alcohol	.0021286	.0011357	1.87	0.062	-.0001112	.0043684
bmi	-.0186056	.0090063	-2.07	0.040	-.0363672	-.0008439
hepatitis	-.0000708	.0000776	-0.91	0.363	-.0002238	.0000822
measles	.0003122	.0001586	1.97	0.050	-5.13e-07	.0006249
polio	.0001316	.000176	0.75	0.455	-.0002154	.0004787
diphtheria	-.0001754	.0002252	-0.78	0.437	-.0006196	.0002687
basic_water	.0007366	.0003915	1.88	0.061	-.0000355	.0015087
gni_capita	5.69e-06	1.55e-06	3.67	0.000	2.63e-06	8.75e-06
gghed	-.006016	.0021176	-2.84	0.005	-.0101921	-.0018398
che_gdp	.0003886	.0009709	0.40	0.689	-.0015262	.0023034
une_pop	4.26e-07	5.63e-07	0.76	0.451	-6.85e-07	1.54e-06
une_hiv	-.001296	.0013487	-0.96	0.338	-.0039559	.0013638

une_edu_spend	.0012154	.000879	1.38	0.168	-.0005181	.002949
year						
2001	.0107093	.0061263	1.75	0.082	-.0013727	.0227912
2002	.0086011	.0061778	1.39	0.165	-.0035824	.0207846
2003	.0146864	.0067326	2.18	0.030	.0014087	.0279641
2004	.0186238	.0073111	2.55	0.012	.0042053	.0330423
2005	.0243358	.0084263	2.89	0.004	.007718	.0409537
2006	.0271539	.0092424	2.94	0.004	.0089267	.0453812
2007	.0322308	.0104303	3.09	0.002	.0116608	.0528009
2008	.0340331	.0111305	3.06	0.003	.0120823	.055984
2009	.0391123	.0122578	3.19	0.002	.0149381	.0632865
2010	.0454072	.0131143	3.46	0.001	.0195439	.0712705
2011	.0507414	.0139767	3.63	0.000	.0231773	.0783055
2012	.0545234	.0148642	3.67	0.000	.0252091	.0838377
2013	.0588844	.0159099	3.70	0.000	.0275079	.0902609
_cons	9.07282	.2047335	44.32	0.000	8.669056	9.476583
sigma_u	.07807059					
sigma_e	.00871381					
rho	.9876955	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 196) = 87.18 Prob > F = 0.0000

```
45 .
46 . predict e_of_sqrtLE, e
(515 missing values generated)

47 .
48 . swilk e_of_sqrtLE
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
e_of_sqrtLE	267	0.97911	4.016	3.245	0.00059

```
49 . save "C:\Users\pddes\Desktop\final.dta"
file C:\Users\pddes\Desktop\final.dta saved

50 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio d
>  gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, robust fe
```

Fixed-effects (within) regression — Number of obs = 267
Group variable: country_num — Number of groups = 42

R-sq: within = 0.9951 — Obs per group: min = 1
between = 0.9073 — avg = 6.4
overall = 0.9211 — max = 14

F(29,41) = 3970.45
corr(u_i, Xb) = 0.1761 — Prob > F = 0.0000

(Std. Err. adjusted for 42 clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0366065	.0009737	-37.60	0.000	-.0385729	-.0346401
infant_mort	-26.60035	17.65609	-1.51	0.140	-62.25755	9.056861
age14mort	-262.1415	47.59942	-5.51	0.000	-358.2705	-166.0125
alcohol	.0331265	.0305321	1.08	0.284	-.0285344	.0947874
bmi	-.3097668	.3604596	-0.86	0.395	-1.03773	.4181962
hepatitis	-.0014569	.0015051	-0.97	0.339	-.0044966	.0015827
measles	.0080317	.0045299	1.77	0.084	-.0011166	.0171799
polio	.0035602	.0042484	0.84	0.407	-.0050197	.0121401
diphtheria	-.0063406	.0046557	-1.36	0.181	-.015743	.0030618
basic_water	.0126259	.014616	0.86	0.393	-.0168916	.0421434
gni_capita	.0001014	.0000667	1.52	0.136	-.0000332	.0002361
gghed	-.0996824	.0633959	-1.57	0.124	-.2277131	.0283484
che_gdp	-.001486	.0315867	-0.05	0.963	-.0652767	.0623047

une_pop	.0000326	.0000189	1.73	0.092	-5.52e-06	.0000707
une_hiv	-.077693	.0484238	-1.60	0.116	-.1754868	.0201008
une_edu_spend	.0246279	.0230146	1.07	0.291	-.0218511	.0711068
year						
2001	.2575777	.0964957	2.67	0.011	.0627007	.4524546
2002	.2318143	.1104002	2.10	0.042	.0088564	.4547721
2003	.3582495	.1377955	2.60	0.013	.0799659	.6365332
2004	.4208476	.1792686	2.35	0.024	.0588074	.7828879
2005	.5370579	.2338943	2.30	0.027	.0646987	1.009417
2006	.5918498	.2922309	2.03	0.049	.0016775	1.182022
2007	.6790128	.3671403	1.85	0.072	-.0624422	1.420468
2008	.7257928	.4028018	1.80	0.079	-.0876819	1.539267
2009	.863362	.4518478	1.91	0.063	-.0491631	1.775887
2010	.9864384	.49248	2.00	0.052	-.0081451	1.981022
2011	1.103553	.5366337	2.06	0.046	.0197989	2.187307
2012	1.192061	.5793338	2.06	0.046	.0220725	2.362049
2013	1.297566	.6248563	2.08	0.044	.035643	2.559489
_cons	78.9707	7.826111	10.09	0.000	63.16555	94.77585
sigma_u	1.813119					
sigma_e	.16794208					
rho	.9914934	(fraction of variance due to u_i)				

```
51 . pwcorr adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio diphtheria b
   >  gghed che_gdp une_pop une_hiv une_edu_spend, star(0.05) sig
```

	adult_~y	infant~t	age14m~t	alcohol	bmi	hepati~s	measles
adult_mort~y	1.0000						
infant_mort	0.5530*	1.0000					
	0.0000						
age14mort	0.4232*	0.8644*	1.0000				
	0.0000	0.0000					
alcohol	0.0780*	-0.1336*	-0.1368*	1.0000			
	0.0291	0.0002	0.0001				
bmi	-0.1317*	-0.4600*	-0.5185*	0.3235*	1.0000		
	0.0002	0.0000	0.0000	0.0000			
hepatitis	-0.2011*	-0.5230*	-0.4782*	0.0907*	0.2348*	1.0000	
	0.0000	0.0000	0.0000	0.0279	0.0000		
measles	-0.2115*	-0.6159*	-0.5975*	0.1282*	0.3621*	0.8472*	1.0000
	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	
polio	-0.2386*	-0.6538*	-0.6251*	0.0815*	0.3444*	0.8661*	0.9228*
	0.0000	0.0000	0.0000	0.0226	0.0000	0.0000	0.0000
diphtheria	-0.2378*	-0.6578*	-0.6302*	0.0867*	0.3665*	0.8919*	0.9366*
	0.0000	0.0000	0.0000	0.0153	0.0000	0.0000	0.0000
basic_water	-0.3454*	-0.6040*	-0.5861*	0.1587*	0.7684*	0.3448*	0.4141*
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
gni_capita	-0.2156*	-0.4441*	-0.4396*	0.4318*	0.6016*	0.2211*	0.1325*
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008
gghed	0.0631	-0.3497*	-0.3078*	0.1810*	0.4398*	0.3265*	0.4127*
	0.0799	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
che_gdp	0.1890*	0.0475	-0.0026	0.0651	0.0606	0.1876*	0.2474*
	0.0000	0.1877	0.9434	0.0708	0.0922	0.0000	0.0000
une_pop	0.0301	0.0921*	0.0699	0.1605*	-0.1627*	-0.3533*	-0.2766*
	0.3998	0.0100	0.0508	0.0000	0.0000	0.0000	0.0000

une_hiv	**0.6580***	**-0.0538**	**-0.1493***	**0.2446***	**0.4440***	**0.1607***	**0.2748***
	0.0000	**0.1414**	**0.0000**	**0.0000**	**0.0000**	**0.0001**	**0.0000**
une_edu_sp~d	**0.1360***	**-0.2662***	**-0.3191***	**0.0952***	**0.2955***	**0.1722***	**0.3366***
	0.0033	**0.0000**	**0.0000**	**0.0403**	**0.0000**	**0.0009**	**0.0000**

	polio	diphth~a	basic_~r	gni_ca~a	gghed	che_gdp	une_pop
polio	**1.0000**						
diphtheria	**0.9614***	**1.0000**					
	0.0000						
basic_water	**0.4453***	**0.4554***	**1.0000**				
	0.0000	**0.0000**					
gni_capita	**0.1412***	**0.1342***	**0.5640***	**1.0000**			
	0.0003	**0.0006**	**0.0000**				
gghed	**0.3893***	**0.4027***	**0.3452***	**0.2617***	**1.0000**		
	0.0000	**0.0000**	**0.0000**	**0.0000**			
che_gdp	**0.2599***	**0.2599***	**0.0067**	**-0.2200***	**0.4678***	**1.0000**	
	0.0000	**0.0000**	**0.8520**	**0.0000**	**0.0000**		
une_pop	**-0.2571***	**-0.2935***	**-0.2499***	**-0.1017***	**-0.1720***	**-0.1432***	**1.0000**
	0.0000	**0.0000**	**0.0000**	**0.0099**	**0.0000**	**0.0001**	
une_hiv	**0.2375***	**0.2465***	**0.1481***	**0.1928***	**0.5900***	**0.2545***	**-0.1188***
	0.0000	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0011**
une_edu_sp~d	**0.3733***	**0.3699***	**0.2166***	**0.1760***	**0.5091***	**0.1785***	**0.0678**
	0.0000	**0.0000**	**0.0000**	**0.0006**	**0.0000**	**0.0001**	**0.1441**

	une_hiv	une_ed~d
une_hiv	**1.0000**	
une_edu_sp~d	**0.5307***	**1.0000**
	0.0000	

```
52 .
53 . graph matrix adult_mortality infant_mort age14mort alcohol bmi hepatitis measles polio diphth
   > capita gghed che_gdp une_pop une_hiv une_edu_spend, half maxis(ylabel(none) xlabel(none))

54 . testparm i.year

 ( 1)  2001.year = 0
 ( 2)  2002.year = 0
 ( 3)  2003.year = 0
 ( 4)  2004.year = 0
 ( 5)  2005.year = 0
 ( 6)  2006.year = 0
 ( 7)  2007.year = 0
 ( 8)  2008.year = 0
 ( 9)  2009.year = 0
 (10)  2010.year = 0
 (11)  2011.year = 0
 (12)  2012.year = 0
 (13)  2013.year = 0

       F( 13,    41) =    3.04
            Prob > F =    0.0033
```

```
55 . gen mbi
=exp required
r(100);

56 . gen bim
=exp required
r(100);

57 . gen bmi_sq= bmi*bmi

58 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi bmi_sq hepatitis measles
> c_water gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9962                         Obs per group: min =         1
       between = 0.9449                                        avg =       6.4
       overall = 0.9473                                        max =        14

                                                F(30,195)          =   1696.19
corr(u_i, Xb)  = 0.5638                         Prob > F           =    0.0000
```

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0387169	.0005748	-67.36	0.000	-.0398505	-.0375834
infant_mort	-28.28556	5.807342	-4.87	0.000	-39.73883	-16.8323
age14mort	-219.8633	18.76193	-11.72	0.000	-256.8657	-182.861
alcohol	.0372525	.0194528	1.92	0.057	-.0011123	.0756174
bmi	9.679821	1.375971	7.03	0.000	6.966126	12.39352
bmi_sq	-.2165196	.0296357	-7.31	0.000	-.2749672	-.158072
hepatitis	-.0010812	.0013292	-0.81	0.417	-.0037026	.0015402
measles	.0093227	.0027206	3.43	0.001	.0039571	.0146883
polio	-.001205	.0030828	-0.39	0.696	-.0072848	.0048749
diphtheria	-.0040919	.0038682	-1.06	0.291	-.0117209	.003537
basic_water	.0129352	.0067028	1.93	0.055	-.0002841	.0261545
gni_capita	.0001162	.0000266	4.36	0.000	.0000637	.0001688
gghed	-.0292503	.0375142	-0.78	0.437	-.1032359	.0447354
che_gdp	.0112347	.0167141	0.67	0.502	-.0217288	.0441983
une_pop	9.93e-06	.0000101	0.98	0.328	-.00001	.0000299
une_hiv	.112963	.034845	3.24	0.001	.0442415	.1816845
une_edu_spend	.0103485	.0151756	0.68	0.496	-.0195809	.0402779
year						
2001	.1681922	.1055981	1.59	0.113	-.0400688	.3764531
2002	.1896464	.1059257	1.79	0.075	-.0192608	.3985536
2003	.3279375	.1153423	2.84	0.005	.1004589	.5554161
2004	.4351193	.1251867	3.48	0.001	.1882257	.6820129
2005	.563806	.1443108	3.91	0.000	.2791956	.8484164
2006	.6065227	.1582489	3.83	0.000	.2944236	.9186219
2007	.7195078	.1786609	4.03	0.000	.367152	1.071864
2008	.7891541	.1907591	4.14	0.000	.4129383	1.16537
2009	.9442952	.2101557	4.49	0.000	.5298253	1.358765
2010	1.074392	.2248494	4.78	0.000	.6309434	1.517841
2011	1.204537	.2396909	5.03	0.000	.7318177	1.677256
2012	1.334321	.25523	5.23	0.000	.8309555	1.837687
2013	1.445006	.2731354	5.29	0.000	.906327	1.983685
_cons	-36.16339	16.14386	-2.24	0.026	-68.00237	-4.324416
sigma_u	1.7357592					
sigma_e	.1491869					
rho	.99266693	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(41, 195) =    92.81                 Prob > F = 0.0000
```

```
59 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi bmi_sq hepatitis measles
> c_water gni_capita gghed che_gdp une_pop une_hiv une_edu_spend i.year, fe robust

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9962                         Obs per group: min =         1
       between = 0.9449                                        avg =       6.4
       overall = 0.9473                                        max =        14

                                                F(30,41)           =  28598.16
corr(u_i, Xb)  = 0.5638                         Prob > F           =    0.0000

                                (Std. Err. adjusted for 42 clusters in country_num)
------------------------------------------------------------------------------
             |               Robust
  life_expect|      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
adult_mortal~y|  -.0387169   .0011805   -32.80   0.000    -.041101   -.0363329
  infant_mort|  -28.28556   14.94993    -1.89   0.066    -58.47756    1.906432
    age14mort|  -219.8633    40.1606    -5.47   0.000    -300.9693   -138.7574
      alcohol|   .0372525   .0233055     1.60   0.118    -.0098139    .0843189
          bmi|   9.679821   2.671075     3.62   0.001     4.285475    15.07417
       bmi_sq|  -.2165196   .0574961    -3.77   0.001    -.3326353   -.1004039
    hepatitis|  -.0010812   .0013064    -0.83   0.413    -.0037195    .0015571
      measles|   .0093227   .0038966     2.39   0.021     .0014533    .0171921
        polio|   -.001205   .0029863    -0.40   0.689    -.0072359     .004826
   diphtheria|  -.0040919    .003351    -1.22   0.229    -.0108593    .0026755
  basic_water|   .0129352   .0105594     1.22   0.228    -.0083899    .0342603
   gni_capita|   .0001162   .0000523     2.22   0.032     .0000106    .0002218
        gghed|  -.0292503   .0605751    -0.48   0.632    -.1515841    .0930836
      che_gdp|   .0112347   .0246424     0.46   0.651    -.0385317    .0610011
      une_pop|   9.93e-06   .0000213     0.47   0.644    -.0000331     .000053
      une_hiv|    .112963    .067511     1.67   0.102    -.0233783    .2493043
  une_edu_spend|  .0103485   .0203285     0.51   0.613    -.0307058    .0514027
               |
         year|
         2001|   .1681922   .0848914     1.98   0.054    -.0032495    .3396339
         2002|   .1896464   .0972655     1.95   0.058    -.0067853    .3860781
         2003|   .3279375   .1151091     2.85   0.007     .0954699     .560405
         2004|   .4351193   .1339321     3.25   0.002     .1646379    .7056007
         2005|    .563806   .1718711     3.28   0.002     .2167053    .9109066
         2006|   .6065227   .2269235     2.67   0.011     .1482415    1.064804
         2007|   .7195078   .2821593     2.55   0.015     .1496756     1.28934
         2008|   .7891541   .3148102     2.51   0.016     .1533819    1.424926
         2009|   .9442952   .3419411     2.76   0.009     .2537311    1.634859
         2010|   1.074392   .3727207     2.88   0.006     .3216675    1.827117
         2011|   1.204537   .4064084     2.96   0.005     .3837787    2.025295
         2012|   1.334321   .4381406     3.05   0.004     .4494782    2.219164
         2013|   1.445006   .4756646     3.04   0.004     .4843817     2.40563
               |
       _cons|  -36.16339   30.90249    -1.17   0.249    -98.57224    26.24545
-------------+----------------------------------------------------------------
     sigma_u|  1.7357592
     sigma_e|   .1491869
         rho|  .99266693   (fraction of variance due to u_i)
------------------------------------------------------------------------------

60 . gen l_pop= log(une_pop)
```

```
61 . gen l_gnicap=log(gni_capita)
   (139 missing values generated)

62 . gen l_gghed = log( gghed)
   (10 missing values generated)

63 . gen l_ chegdp = log(che_gdp)
   too many variables specified
   r(103);

64 . gen l_chegdp = log(che_gdp)
   (10 missing values generated)

65 . gen l_eduspend=log( une_edu_spend)
   (317 missing values generated)

66 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi bmi_sq hepatitis measles
   > c_water l_gnicap  une_hiv l_pop l_gnicap l_gghed l_chegdp l_eduspend i.year, fe
   note: l_gnicap omitted because of collinearity

   Fixed-effects (within) regression               Number of obs      =       267
   Group variable: country_num                     Number of groups   =        42

   R-sq:  within  = 0.9960                         Obs per group: min =         1
          between = 0.8755                                        avg =       6.4
          overall = 0.8912                                        max =        14

                                                   F(30,195)          =   1622.60
   corr(u_i, Xb)  = 0.3184                         Prob > F           =    0.0000
```

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0389214	.0005421	-71.80	0.000	-.0399906	-.0378523
infant_mort	-19.97202	5.544515	-3.60	0.000	-30.90694	-9.037104
age14mort	-229.0095	19.39756	-11.81	0.000	-267.2654	-190.7535
alcohol	.0254177	.0200575	1.27	0.207	-.0141398	.0649752
bmi	10.14822	1.575845	6.44	0.000	7.040334	13.25611
bmi_sq	-.2316612	.0330089	-7.02	0.000	-.2967616	-.1665609
hepatitis	-.0022883	.0013274	-1.72	0.086	-.0049063	.0003296
measles	.0108024	.0027639	3.91	0.000	.0053515	.0162533
polio	-.0014973	.0031379	-0.48	0.634	-.0076858	.0046912
diphtheria	-.0037066	.0039757	-0.93	0.352	-.0115474	.0041342
basic_water	.0070428	.0067057	1.05	0.295	-.0061821	.0202677
l_gnicap	.4643252	.1930343	2.41	0.017	.0836223	.8450282
une_hiv	.1455411	.0335778	4.33	0.000	.0793188	.2117634
l_pop	-.7827353	.734413	-1.07	0.288	-2.231148	.665677
l_gnicap	0	(omitted)				
l_gghed	-.0413142	.0522892	-0.79	0.430	-.1444391	.0618107
l_chegdp	.1085863	.1032212	1.05	0.294	-.0949869	.3121595
l_eduspend	.010921	.055988	0.20	0.846	-.0994986	.1213407
year						
2001	.1888739	.1076814	1.75	0.081	-.0234957	.4012435
2002	.2631578	.1060698	2.48	0.014	.0539665	.4723492
2003	.4583628	.1135616	4.04	0.000	.2343962	.6823294
2004	.619121	.11977	5.17	0.000	.3829101	.8553318
2005	.8033698	.1344833	5.97	0.000	.5381413	1.068598
2006	.9058585	.1443152	6.28	0.000	.6212395	1.190477
2007	1.090169	.1606343	6.79	0.000	.7733655	1.406973
2008	1.19885	.1704572	7.03	0.000	.8626737	1.535027
2009	1.41902	.1862366	7.62	0.000	1.051723	1.786316
2010	1.596848	.199385	8.01	0.000	1.20362	1.990076
2011	1.780629	.2116657	8.41	0.000	1.363181	2.198077
2012	1.966189	.228887	8.59	0.000	1.514777	2.417601
2013	2.126152	.2465964	8.62	0.000	1.639814	2.61249
_cons	-35.52846	15.75102	-2.26	0.025	-66.5927	-4.464233
sigma_u	2.2676746					
sigma_e	.15251911					
rho	.99549674	(fraction of variance due to u_i)				

F test that all u_i=0: F(**41, 195**) = **100.45** Prob > F = **0.0000**

```
67 . xtreg life_expect adult_mortality infant_mort age14mort alcohol bmi bmi_sq hepatitis measles
> c_water l_gnicap  une_hiv l_pop l_gnicap l_gghed l_chegdp l_eduspend i.year, fe robust
note: l_gnicap omitted because of collinearity
```

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9960** — Obs per group: min = **1**
between = **0.8755** — avg = **6.4**
overall = **0.8912** — max = **14**

F(**30,41**) = **35031.64**
corr(u_i, Xb) = **0.3184** — Prob > F = **0.0000**

(Std. Err. adjusted for **42** clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0389214	.0011827	-32.91	0.000	-.0413099	-.0365329
infant_mort	-19.97202	12.20093	-1.64	0.109	-44.61231	4.668267
age14mort	-229.0095	34.12832	-6.71	0.000	-297.933	-160.0859
alcohol	.0254177	.0294355	0.86	0.393	-.0340285	.0848639
bmi	10.14822	2.563917	3.96	0.000	4.970285	15.32616
bmi_sq	-.2316612	.0538208	-4.30	0.000	-.3403546	-.1229679
hepatitis	-.0022883	.0016212	-1.41	0.166	-.0055624	.0009857
measles	.0108024	.0036761	2.94	0.005	.0033783	.0182265
polio	-.0014973	.0028921	-0.52	0.607	-.007338	.0043434
diphtheria	-.0037066	.0035313	-1.05	0.300	-.0108381	.003425
basic_water	.0070428	.0094494	0.75	0.460	-.0120407	.0261263
l_gnicap	.4643252	.2881576	1.61	0.115	-.1176208	1.046271
une_hiv	.1455411	.0554972	2.62	0.012	.0334623	.2576199
l_pop	-.7827353	1.37392	-0.57	0.572	-3.557423	1.991953
l_gnicap	0	(omitted)				
l_gghed	-.0413142	.0568037	-0.73	0.471	-.1560317	.0734033
l_chegdp	.1085863	.1346689	0.81	0.425	-.163383	.3805557
l_eduspend	.010921	.06165	0.18	0.860	-.1135836	.1354257
year						
2001	.1888739	.0907005	2.08	0.044	.0057006	.3720473
2002	.2631578	.1088843	2.42	0.020	.0432616	.4830541
2003	.4583628	.0982186	4.67	0.000	.2600062	.6567194
2004	.619121	.1116383	5.55	0.000	.3936628	.8445792
2005	.8033698	.137594	5.84	0.000	.5254931	1.081247
2006	.9058585	.151102	6.00	0.000	.6007017	1.211015
2007	1.090169	.2263332	4.82	0.000	.6330801	1.547258
2008	1.19885	.2542751	4.71	0.000	.6853311	1.712369
2009	1.41902	.2615487	5.43	0.000	.8908114	1.947228
2010	1.596848	.2941409	5.43	0.000	1.002818	2.190877
2011	1.780629	.3197859	5.57	0.000	1.134808	2.426449
2012	1.966189	.3532606	5.57	0.000	1.252765	2.679614
2013	2.126152	.3727451	5.70	0.000	1.373378	2.878926
_cons	-35.52846	23.98759	-1.48	0.146	-83.97238	12.91545
sigma_u	2.2676746					
sigma_e	.15251911					
rho	.99549674	(fraction of variance due to u_i)				

```
68 . vif, uncentered
```

Variable	VIF	1/VIF
adult_mort~y	92.60	0.010800
infant_mort	85.63	0.011679
age14mort	25.17	0.039735
alcohol	4.51	0.221700
bmi	3046.73	0.000328
bmi_sq	1341.36	0.000746
hepatitis	105.29	0.009498
measles	238.57	0.004192
polio	497.29	0.002011
diphtheria	572.44	0.001747
basic_water	71.67	0.013952
l_gnicap	455.38	0.002196
une_hiv	13.75	0.072720
l_pop	83.95	0.011912
l_gghed	4.75	0.210340
l_chegdp	50.66	0.019741
l_eduspend	18.66	0.053588
year		
2001	2.31	0.433426
2002	3.71	0.269423
2003	3.94	0.253706
2004	5.87	0.170365
2005	5.92	0.169023
2006	5.88	0.170154
2007	5.28	0.189284
2008	7.79	0.128438
2009	6.88	0.145421
2010	9.81	0.101987
2011	8.56	0.116833
2012	8.60	0.116314
2013	9.52	0.105019
Mean VIF	226.41	

```
69 . xtreg life_expect  infant_mort age14mort alcohol bmi bmi_sq hepatitis measles basic_water l_g
> i.year, fe robust
note: l_gnicap omitted because of collinearity

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.8895                         Obs per group: min =         1
       between = 0.4311                                        avg =       6.4
       overall = 0.5208                                        max =        14

                                                F(27,41)           =     48.98
corr(u_i, Xb)  = -0.9251                        Prob > F           =    0.0000

                                (Std. Err. adjusted for 42 clusters in country_num)
```

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
infant_mort	-84.05009	55.47482	-1.52	0.137	-196.0838	27.98359
age14mort	-431.7248	234.3611	-1.84	0.073	-905.0266	41.57699
alcohol	.1297818	.1592223	0.82	0.420	-.1917742	.4513378
bmi	-25.29906	15.04581	-1.68	0.100	-55.68469	5.086574
bmi_sq	.5597266	.315419	1.77	0.083	-.077275	1.196728
hepatitis	-.00963	.0075032	-1.28	0.207	-.0247831	.0055231
measles	.0308583	.0190038	1.62	0.112	-.0075205	.0692372
basic_water	.0668009	.0787633	0.85	0.401	-.0922647	.2258666
l_gnicap	1.461476	1.491837	0.98	0.333	-1.551351	4.474303
une_hiv	-1.230148	.37823	-3.25	0.002	-1.993999	-.4662968
l_pop	-8.005374	5.647573	-1.42	0.164	-19.41088	3.400131
l_gnicap	0	(omitted)				
l_gghed	.4094253	.3163542	1.29	0.203	-.2294649	1.048316
l_chegdp	-.4133533	.8168112	-0.51	0.616	-2.062937	1.23623
l_eduspend	-.1164933	.4754475	-0.25	0.808	-1.076679	.8436925

year						
2001	.2121396	.3866958	0.55	0.586	-.5688083	.9930876
2002	-.1163629	.6550282	-0.18	0.860	-1.439219	1.206493
2003	-.0527132	.720556	-0.07	0.942	-1.507905	1.402479
2004	-.0950475	.8501356	-0.11	0.912	-1.811931	1.621836
2005	-.13406	.9318434	-0.14	0.886	-2.015956	1.747836
2006	.2676506	.9724868	0.28	0.785	-1.696326	2.231628
2007	.5211987	.9797425	0.53	0.598	-1.457431	2.499829
2008	.9464319	1.075914	0.88	0.384	-1.226421	3.119284
2009	1.113022	1.095525	1.02	0.316	-1.099435	3.32548
2010	1.232296	1.142467	1.08	0.287	-1.074964	3.539556
2011	1.52401	1.196931	1.27	0.210	-.8932414	3.941262
2012	1.638879	1.31294	1.25	0.219	-1.012657	4.290415
2013	1.867104	1.392051	1.34	0.187	-.9442005	4.678409
_cons	412.7418	146.8652	2.81	0.008	116.1415	709.3421
sigma_u	11.401649					
sigma_e	.796472					
rho	.99514386	(fraction of variance due to u_i)				

70 . xtreg life_expect gni_capita gghed une_edu_spend basic_water une_hiv, fe

Fixed-effects (within) regression — Number of obs = 363
Group variable: country_num — Number of groups = 42

R-sq: within = 0.6962 — Obs per group: min = 1
between = 0.5650 — avg = 8.6
overall = 0.4881 — max = 14

F(5,316) = 144.86
corr(u_i, Xb) = -0.9022 — Prob > F = 0.0000

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gni_capita	.0010974	.0001317	8.33	0.000	.0008383	.0013565
gghed	.1471833	.2274303	0.65	0.518	-.3002856	.5946523
une_edu_spend	.2765442	.1249322	2.21	0.028	.0307403	.5223482
basic_water	.439495	.0279009	15.75	0.000	.3846001	.49439
une_hiv	-1.849944	.146287	-12.65	0.000	-2.137764	-1.562125
_cons	34.9247	1.826993	19.12	0.000	31.3301	38.51931
sigma_u	11.055274					
sigma_e	1.7239086					
rho	.97626138	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 316) = 48.35 — Prob > F = 0.0000

71 . xtreg life_expect gni_capita gghed une_edu_spend basic_water une_hiv measles infant_mort , fe

Fixed-effects (within) regression — Number of obs = 363
Group variable: country_num — Number of groups = 42

R-sq: within = 0.9008 — Obs per group: min = 1
between = 0.8604 — avg = 8.6
overall = 0.8687 — max = 14

F(7,314) = 407.43
corr(u_i, Xb) = -0.6920 — Prob > F = 0.0000

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gni_capita	.0005097	.00008	6.37	0.000	.0003523	.000667
gghed	.3240903	.1305976	2.48	0.014	.0671333	.5810474
une_edu_spend	-.0366651	.0729532	-0.50	0.616	-.1802041	.1068739
basic_water	.0536157	.0220814	2.43	0.016	.0101695	.0970619
une_hiv	-.8323165	.0929163	-8.96	0.000	-1.015134	-.6494991
measles	.0071171	.008448	0.84	0.400	-.0095047	.023739
infant_mort	-185.4007	8.349724	-22.20	0.000	-201.8291	-168.9722
_cons	68.28728	1.916605	35.63	0.000	64.51627	72.05829
sigma_u	3.3404948					
sigma_e	.98819787					
rho	.91953032	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 314) = 22.37 Prob > F = 0.0000

72 . xtreg life_expect gni_capita gghed une_edu_spend basic_water une_hiv polio infant_mort , fe

Fixed-effects (within) regression Number of obs = 363
Group variable: country_num Number of groups = 42

R-sq: within = 0.9017 Obs per group: min = 1
between = 0.8535 avg = 8.6
overall = 0.8638 max = 14

F(7,314) = 411.63
corr(u_i, Xb) = -0.7087 Prob > F = 0.0000

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gni_capita	.0005378	.0000789	6.81	0.000	.0003825	.0006931
gghed	.3246823	.1299598	2.50	0.013	.0689802	.5803844
une_edu_spend	-.0273286	.0723159	-0.38	0.706	-.1696136	.1149564
basic_water	.0562113	.0220315	2.55	0.011	.0128632	.0995594
une_hiv	-.8369225	.0925218	-9.05	0.000	-1.018964	-.6548814
polio	-.0157472	.0082565	-1.91	0.057	-.0319923	.0004978
infant_mort	-193.9782	7.896006	-24.57	0.000	-209.514	-178.4424
_cons	70.36165	1.831694	38.41	0.000	66.75771	73.96559
sigma_u	3.5099463					
sigma_e	.9836329					
rho	.92718334	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 314) = 22.89 Prob > F = 0.0000

73 . xtreg life_expect gni_capita gghed une_edu_spend basic_water une_hiv polio infant_mort bmi, f

Fixed-effects (within) regression Number of obs = 363
Group variable: country_num Number of groups = 42

R-sq: within = 0.9019 Obs per group: min = 1
between = 0.8477 avg = 8.6
overall = 0.8587 max = 14

F(8,313) = 359.67
corr(u_i, Xb) = -0.7213 Prob > F = 0.0000

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gni_capita	.0005666	.0000888	6.38	0.000	.0003918	.0007414
gghed	.3422636	.1324145	2.58	0.010	.0817285	.6027987
une_edu_spend	-.0187099	.073391	-0.25	0.799	-.1631119	.1256921
basic_water	.0573216	.0221048	2.59	0.010	.0138288	.1008144
une_hiv	-.8430254	.0929961	-9.07	0.000	-1.026002	-.6600489
polio	-.0157563	.0082631	-1.91	0.057	-.0320145	.0005019
infant_mort	-197.9776	9.715085	-20.38	0.000	-217.0927	-178.8625
bmi	-.2377012	.3358765	-0.71	0.480	-.8985624	.42316
_cons	75.89616	8.032345	9.45	0.000	60.09194	91.70037

sigma_u	**3.633066**
sigma_e	**.98441566**
rho	**.93160237** (fraction of variance due to u_i)

F test that all u_i=0: F(**41, 313**) = **21.02** Prob > F = **0.0000**

74 . xtreg life_expect gni_capita gghed une_edu_spend basic_water une_hiv polio infant_mort bmi bm

Fixed-effects (within) regression — Number of obs = **363**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9035** — Obs per group: min = **1**
between = **0.8112** — avg = **8.6**
overall = **0.8297** — max = **14**

F(**9,312**) = **324.49**
corr(u_i, Xb) = **-0.7605** — Prob > F = **0.0000**

life_expect	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gni_capita	.0004905	.0000944	5.19	0.000	.0003047	.0006763
gghed	.2545914	.1371307	1.86	0.064	-.0152264	.5244092
une_edu_spend	-.004025	.0731998	-0.05	0.956	-.1480527	.1400026
basic_water	.0515064	.0221102	2.33	0.020	.0080024	.0950104
une_hiv	-.9664164	.1072647	-9.01	0.000	-1.17747	-.7553628
polio	-.012695	.0083197	-1.53	0.128	-.0290649	.0036749
infant_mort	-206.4681	10.35456	-19.94	0.000	-226.8417	-186.0945
bmi	-11.31908	4.905606	-2.31	0.022	-20.97134	-1.666829
bmi_sq	.2374461	.1048713	2.26	0.024	.0311016	.4437905
_cons	206.2579	58.12642	3.55	0.000	91.88855	320.6272

sigma_u	**4.3514761**
sigma_e	**.97799008**
rho	**.95191666** (fraction of variance due to u_i)

F test that all u_i=0: F(**41, 312**) = **21.37** Prob > F = **0.0000**

75 . xtreg life_expect adult_mortality infant_mort alcohol bmi bmi_sq hepatitis measles polio dip
> ed une_hiv une_edu_spend i.year, fe robust

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9934** — Obs per group: min = **1**
between = **0.9115** — avg = **6.4**
overall = **0.9351** — max = **14**

F(**27,41**) = **2705.64**
corr(u_i, Xb) = **0.4547** — Prob > F = **0.0000**

(Std. Err. adjusted for **42** clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0397495	.0012318	-32.27	0.000	-.0422372	-.0372619
infant_mort	-74.25518	10.78848	-6.88	0.000	-96.04296	-52.46739
alcohol	.0424454	.0348627	1.22	0.230	-.0279614	.1128521
bmi	14.17133	3.119368	4.54	0.000	7.871643	20.47103
bmi_sq	-.3024828	.0661562	-4.57	0.000	-.436088	-.1688776
hepatitis	-.0025045	.0015036	-1.67	0.103	-.0055411	.0005321
measles	.0180591	.0067357	2.68	0.011	.0044561	.0316621
polio	-.0089839	.0051576	-1.74	0.089	-.0193998	.0014321
diphtheria	-.0039454	.0050872	-0.78	0.442	-.0142191	.0063284
basic_water	.0140568	.0171796	0.82	0.418	-.0206382	.0487517
gni_capita	.0001147	.0000606	1.89	0.065	-7.69e-06	.0002371
gghed	-.0278828	.0538745	-0.52	0.608	-.1366846	.0809191
une_hiv	.1828998	.073859	2.48	0.017	.0337386	.3320611
une_edu_spend	.0051659	.0314926	0.16	0.871	-.0584347	.0687665

year						
2001	.0855904	.0819686	1.04	0.303	-.0799485	.2511294
2002	.1279684	.1144411	1.12	0.270	-.1031501	.359087
2003	.2066303	.1550911	1.33	0.190	-.1065825	.519843
2004	.3184074	.1818929	1.75	0.088	-.0489327	.6857476
2005	.405146	.2242389	1.81	0.078	-.0477136	.8580056
2006	.3932997	.2965074	1.33	0.192	-.2055093	.9921086
2007	.4813339	.3500929	1.37	0.177	-.2256929	1.188361
2008	.5637068	.3983432	1.42	0.165	-.2407637	1.368177
2009	.6458499	.4365027	1.48	0.147	-.2356851	1.527385
2010	.762745	.4785431	1.59	0.119	-.2036924	1.729182
2011	.8974295	.5172587	1.73	0.090	-.1471956	1.942055
2012	1.008098	.5576604	1.81	0.078	-.1181203	2.134316
2013	1.090146	.6046007	1.80	0.079	-.1308695	2.311162
_cons	-92.51624	37.2884	-2.48	0.017	-167.8217	-17.21079
sigma_u	1.9080355					
sigma_e	.19504574					
rho	.98965846	(fraction of variance due to u_i)				

76 . xtreg life_expect adult_mortality infant_mort alcohol bmi bmi_sq hepatitis measles polio dip
> ed une_hiv l_eduspend i.year, fe robust

Fixed-effects (within) regression Number of obs = 267
Group variable: country_num Number of groups = 42

R-sq: within = 0.9930 Obs per group: min = 1
between = 0.8894 avg = 6.4
overall = 0.8957 max = 14

F(27,41) = 2109.61
corr(u_i, Xb) = 0.4731 Prob > F = 0.0000

(Std. Err. adjusted for 42 clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0399996	.0012339	-32.42	0.000	-.0424915	-.0375078
infant_mort	-63.49632	9.978248	-6.36	0.000	-83.6478	-43.34484
alcohol	.0341795	.0400463	0.85	0.398	-.0466955	.1150546
bmi	13.32217	2.823492	4.72	0.000	7.620016	19.02433
bmi_sq	-.2918242	.0605632	-4.82	0.000	-.414134	-.1695145
hepatitis	-.0038827	.0016147	-2.40	0.021	-.0071437	-.0006217
measles	.0201558	.0063174	3.19	0.003	.0073975	.0329142
polio	-.0081613	.0044665	-1.83	0.075	-.0171817	.000859
diphtheria	-.0032554	.0050742	-0.64	0.525	-.013503	.0069922
basic_water	.0072662	.0182135	0.40	0.692	-.0295167	.0440492
l_gnicap	-.0912969	.3962248	-0.23	0.819	-.8914892	.7088954
l_gghed	-.0874152	.0598879	-1.46	0.152	-.2083612	.0335308
une_hiv	.207707	.0764843	2.72	0.010	.0532438	.3621701
l_eduspend	.0425651	.0914035	0.47	0.644	-.142028	.2271583
year						
2001	.1519666	.087625	1.73	0.090	-.0249956	.3289289
2002	.255415	.1150077	2.22	0.032	.0231523	.4876777
2003	.4023288	.123148	3.27	0.002	.1536263	.6510313
2004	.5831959	.1394179	4.18	0.000	.3016357	.8647561
2005	.762942	.1716232	4.45	0.000	.4163419	1.109542
2006	.8312936	.2085416	3.99	0.000	.4101353	1.252452
2007	1.01052	.2962838	3.41	0.001	.4121624	1.608877
2008	1.152435	.3295406	3.50	0.001	.4869143	1.817956
2009	1.30749	.3536897	3.70	0.001	.5931992	2.021781
2010	1.492785	.3986191	3.74	0.001	.6877574	2.297813
2011	1.690684	.4265375	3.96	0.000	.8292742	2.552094
2012	1.861419	.4619008	4.03	0.000	.9285913	2.794246
2013	2.017235	.4921813	4.10	0.000	1.023255	3.011215
_cons	-78.62125	33.95116	-2.32	0.026	-147.187	-10.05548

sigma_u	**2.3166934**
sigma_e	**.19983013**
rho	**.99261474** (fraction of variance due to u_i)

77 . xtreg life_expect adult_mortality infant_mort alcohol bmi bmi_sq hepatitis measles polio dip
> l_gghed une_hiv l_eduspend i.year, fe robust

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9931** — Obs per group: min = **1**
between = **0.8135** — avg = **6.4**
overall = **0.8487** — max = **14**

F(**28,41**) = **2226.42**
corr(u_i, Xb) = **0.1851** — Prob > F = **0.0000**

(Std. Err. adjusted for **42** clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.03991	.0012308	-32.43	0.000	-.0423956	-.0374245
infant_mort	-65.32539	9.678923	-6.75	0.000	-84.87238	-45.77841
alcohol	.0381287	.038258	1.00	0.325	-.0391348	.1153923
bmi	14.55957	3.655643	3.98	0.000	7.176851	21.94229
bmi_sq	-.3162097	.0763179	-4.14	0.000	-.4703368	-.1620826
hepatitis	-.0040046	.0016537	-2.42	0.020	-.0073443	-.0006648
measles	.0205418	.0062153	3.31	0.002	.0079897	.0330938
polio	-.0083448	.0045069	-1.85	0.071	-.0174467	.0007571
diphtheria	-.0025623	.0048892	-0.52	0.603	-.0124362	.0073117
basic_water	.0088157	.0181154	0.49	0.629	-.027769	.0454005
l_gnicap	-.1617748	.3774395	-0.43	0.670	-.9240293	.6004797
l_pop	-.9520289	1.614278	-0.59	0.559	-4.212129	2.308071
l_gghed	-.0900836	.0602917	-1.49	0.143	-.2118451	.031678
une_hiv	.2124983	.0778879	2.73	0.009	.0552005	.3697962
l_eduspend	.0402915	.0940582	0.43	0.671	-.1496629	.2302459
year						
2001	.1514652	.0879553	1.72	0.093	-.0261641	.3290946
2002	.2503207	.1127998	2.22	0.032	.0225169	.4781245
2003	.415523	.1192642	3.48	0.001	.174664	.656382
2004	.6037264	.1349678	4.47	0.000	.3311533	.8762996
2005	.7884132	.167849	4.70	0.000	.4494354	1.127391
2006	.8683762	.2045305	4.25	0.000	.4553184	1.281434
2007	1.061928	.2989526	3.55	0.001	.4581812	1.665675
2008	1.215103	.339797	3.58	0.001	.5288687	1.901336
2009	1.382453	.3626619	3.81	0.000	.6500426	2.114864
2010	1.579587	.4114378	3.84	0.000	.7486712	2.410502
2011	1.790719	.4474224	4.00	0.000	.8871311	2.694307
2012	1.983299	.4915132	4.04	0.000	.9906678	2.97593
2013	2.153903	.5267115	4.09	0.000	1.090188	3.217619
_cons	-85.19469	36.15617	-2.36	0.023	-158.2136	-12.17583

sigma_u	**2.6216484**
sigma_e	**.19982565**
rho	**.99422386** (fraction of variance due to u_i)

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78 .
79 .
80 . xtreg life_expect adult_mortality infant_mort age14mort alcohol hepatitis measles polio dipht
>  che_gdp une_pop une_hiv une_edu_spend i.year, robust fe

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9951                         Obs per group: min =         1
       between = 0.9358                                        avg =       6.4
       overall = 0.9482                                        max =        14

                                                F(28,41)           =   4564.14
corr(u_i, Xb)  = 0.2465                         Prob > F           =    0.0000

                                (Std. Err. adjusted for 42 clusters in country_num)
------------------------------------------------------------------------------
             |               Robust
  life_expect|      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
adult_mortality|  -.0365178   .0009802   -37.26   0.000    -.0384973   -.0345383
  infant_mort|  -30.75295   15.65084    -1.96   0.056    -62.36046    .8545507
    age14mort|  -252.2193   46.75801    -5.39   0.000    -346.6491   -157.7896
      alcohol|   .0314425   .031085     1.01   0.318    -.0313349    .0942198
    hepatitis|  -.0010099   .0014976    -0.67   0.504    -.0040344    .0020145
      measles|   .0081758   .004726     1.73   0.091    -.0013686    .0177202
        polio|   .0032194   .0043517    0.74   0.464    -.0055691    .0120079
   diphtheria|  -.0070542     .00418    -1.69   0.099    -.0154959    .0013875
  basic_water|   .0153145   .0147805    1.04   0.306    -.0145354    .0451645
   gni_capita|   .0001275   .0000539    2.37   0.023     .0000186    .0002364
        gghed|  -.1073636   .0646814    -1.66   0.105    -.2379903    .0232632
      che_gdp|   .0006338   .0314154    0.02   0.984     -.062811    .0640786
      une_pop|   .0000345   .0000184    1.88   0.068    -2.64e-06    .0000716
      une_hiv|  -.0837742   .0469499    -1.78   0.082    -.1785914     .011043
 une_edu_spend|   .0226591   .0232493    0.97   0.335    -.0242939    .0696121

         year|
        2001|   .2217857   .0930556     2.38   0.022      .033856    .4097153
        2002|   .1519915   .0945934     1.61   0.116    -.0390438    .3430269
        2003|   .2409026   .0778974     3.09   0.004     .0835857    .3982195
        2004|   .2669289   .0934462     2.86   0.007     .0782105    .4556473
        2005|   .3384905   .1152476     2.94   0.005     .1057432    .5712377
        2006|   .3601548    .129645     2.78   0.008     .0983314    .6219782
        2007|   .4021395    .172565     2.33   0.025     .0536375    .7506415
        2008|   .4261891   .1746778     2.44   0.019     .0734202    .7789581
        2009|   .5249715    .189969     2.76   0.009     .1413215    .9086216
        2010|   .6215336   .2105529     2.95   0.005     .1963134    1.046754
        2011|    .714624   .2314517     3.09   0.004     .2471979     1.18205
        2012|   .7754893   .2482414     3.12   0.003     .2741556    1.276823
        2013|   .8476785   .2624512     3.23   0.002     .3176475     1.37771

       _cons|   72.04681   1.691047    42.60   0.000     68.63167    75.46195
------------------------------------------------------------------------------
     sigma_u|  1.5134321
     sigma_e|  .16887077
         rho|  .98770271   (fraction of variance due to u_i)
------------------------------------------------------------------------------

81 . xtreg life_expect adult_mortality infant_mort age14mort alcohol hepatitis measles polio dipht
>  che_gdp une_hiv une_edu_spend i.year, robust fe

Fixed-effects (within) regression               Number of obs      =       267
Group variable: country_num                     Number of groups   =        42

R-sq:  within  = 0.9948                         Obs per group: min =         1
       between = 0.9454                                        avg =       6.4
       overall = 0.9555                                        max =        14

                                                F(27,41)           =   9362.89
corr(u_i, Xb)  = 0.2128                         Prob > F           =    0.0000
```

(Std. Err. adjusted for **42** clusters in country_num)

life_expect	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
adult_mortality	-.0370267	.0011392	-32.50	0.000	-.0393274	-.034726
infant_mort	-34.81881	14.42988	-2.41	0.020	-63.96056	-5.677073
age14mort	-238.988	46.70151	-5.12	0.000	-333.3036	-144.6724
alcohol	.0357368	.0284365	1.26	0.216	-.0216919	.0931656
hepatitis	-.0011986	.0016468	-0.73	0.471	-.0045243	.0021271
measles	.0082475	.004706	1.75	0.087	-.0012564	.0177515
polio	.0029021	.0043695	0.66	0.510	-.0059224	.0117265
diphtheria	-.0059525	.0043555	-1.37	0.179	-.0147486	.0028435
basic_water	.0196755	.0148924	1.32	0.194	-.0104003	.0497513
gni_capita	.0001203	.0000527	2.28	0.028	.0000138	.0002268
gghed	-.0928061	.0594191	-1.56	0.126	-.2128053	.0271932
che_gdp	-.0166583	.0274149	-0.61	0.547	-.0720238	.0387072
une_hiv	-.0763845	.040552	-1.88	0.067	-.1582809	.0055118
une_edu_spend	.0135982	.0249613	0.54	0.589	-.0368122	.0640086
year						
2001	.2145936	.0868022	2.47	0.018	.039293	.3898942
2002	.1587484	.0926332	1.71	0.094	-.0283281	.3458249
2003	.2607017	.0842879	3.09	0.004	.0904789	.4309245
2004	.2922253	.1055784	2.77	0.008	.0790053	.5054452
2005	.3772281	.1340041	2.82	0.007	.1066014	.6478548
2006	.3974355	.148532	2.68	0.011	.097469	.6974021
2007	.4375627	.1911963	2.29	0.027	.0514339	.8236914
2008	.4747231	.1986614	2.39	0.022	.0735182	.875928
2009	.5775718	.2148151	2.69	0.010	.143744	1.0114
2010	.6851089	.2399133	2.86	0.007	.2005941	1.169624
2011	.7851512	.2649631	2.96	0.005	.2500474	1.320255
2012	.8582758	.2823652	3.04	0.004	.2880278	1.428524
2013	.9418968	.2998587	3.14	0.003	.3363199	1.547474
_cons	72.61901	1.584825	45.82	0.000	69.4184	75.81963
sigma_u	1.3988928					
sigma_e	.17270685					
rho	.98498655	(fraction of variance due to u_i)				

82 . xtreg infant_mort hepatitis measles polio diphtheria basic_water gni_capita gghed une_hiv une

Fixed-effects (within) regression — Number of obs = **267**
Group variable: **country_num** — Number of groups = **42**

R-sq: within = **0.9003**
between = **0.0166**
overall = **0.0027**

Obs per group: min = **1**
avg = **6.4**
max = **14**

F(**22,41**) = **57.98**
corr(u_i, Xb) = **-0.4183** — Prob > F = **0.0000**

(Std. Err. adjusted for **42** clusters in country_num)

infant_mort	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
hepatitis	.0000506	.0000295	1.71	0.095	-9.11e-06	.0001102
measles	-.0000263	.0000573	-0.46	0.648	-.0001419	.0000893
polio	-4.46e-06	.0000536	-0.08	0.934	-.0001127	.0001038
diphtheria	-.0001576	.0000693	-2.27	0.028	-.0002976	-.0000177
basic_water	-.0005077	.0002686	-1.89	0.066	-.0010502	.0000347
gni_capita	2.74e-06	4.64e-07	5.91	0.000	1.80e-06	3.68e-06
gghed	.0014483	.0007323	1.98	0.055	-.0000305	.0029272
une_hiv	.0002619	.0006039	0.43	0.667	-.0009578	.0014815
une_edu_spend	-.0005956	.0005048	-1.18	0.245	-.001615	.0004238
year						
2001	-.0001044	.0011956	-0.09	0.931	-.0025189	.0023101
2002	-.0008706	.001898	-0.46	0.649	-.0047037	.0029626

2003	-.0008665	.0018923	-0.46	0.649	-.004688	.002955
2004	-.0026991	.0020596	-1.31	0.197	-.0068586	.0014604
2005	-.0046894	.0020585	-2.28	0.028	-.0088465	-.0005322
2006	-.0080416	.0021817	-3.69	0.001	-.0124477	-.0036355
2007	-.0090215	.0024304	-3.71	0.001	-.0139298	-.0041132
2008	-.0118759	.0026445	-4.49	0.000	-.0172166	-.0065353
2009	-.0143989	.002812	-5.12	0.000	-.0200778	-.0087199
2010	-.0169447	.0030644	-5.53	0.000	-.0231335	-.010756
2011	-.0195103	.0032362	-6.03	0.000	-.026046	-.0129746
2012	-.0213016	.0034217	-6.23	0.000	-.0282118	-.0143914
2013	-.0234352	.0036741	-6.38	0.000	-.0308553	-.0160151
_cons	.1090844	.0168722	6.47	0.000	.0750103	.1431584
sigma_u	.02490208					
sigma_e	.00267863					
rho	.98856181	(fraction of variance due to u_i)				

```
83 . save "C:\Users\pddes\Desktop\final.dta", replace
   file C:\Users\pddes\Desktop\final.dta saved

84 . save "C:\Users\pddes\Desktop\final.dta", replace
   file C:\Users\pddes\Desktop\final.dta saved

85 .
```