Notes:
1. Unicode is supported; see help unicode advice.
2. Maximum number of variables is set to 5,000; see help set maxvar.

```
1 . use "B:\LAP_inst_reg_data_04.dta"

2 . xtset
panel variable not set; use xtset varname ...
r(459);

3 . xtset user_

  Panel variable: user_ (unbalanced)

4 . xtreg P_ave FC blockdiff1 DOS DOS_t ppdays gt90 pmax tave tmin totalpp cdd rhave, fe vce(robust)
note: blockdiff1 omitted because of collinearity.
note: rhave omitted because of collinearity.

Fixed-effects (within) regression               Number of obs     =    202,507
Group variable: user_                           Number of groups  =     18,444

R-squared:                                      Obs per group:
     Within  = 0.1932                                         min =          1
     Between = 0.0032                                         avg =       11.0
     Overall = 0.1446                                         max =         11

                                                F(10,18443)       =    2553.33
corr(u_i, Xb) = 0.0003                          Prob > F          =     0.0000

                            (Std. err. adjusted for 18,444 clusters in user_)
------------------------------------------------------------------------------
             |               Robust
      P_ave  | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
          FC |   .1146393   .0058556    19.58   0.000     .1031619    .1261168
  blockdiff1 |           0  (omitted)
         DOS |   .0309626   .0041518     7.46   0.000     .0228248    .0391005
       DOS_t |   .0863199   .0031821    27.13   0.000     .0800827     .092557
      ppdays |    .008164    .000783    10.43   0.000     .0066293    .0096987
        gt90 |  -.0256472   .0009232   -27.78   0.000    -.0274568   -.0238376
        pmax |   .0622514   .0072018     8.64   0.000     .0481352    .0763676
        tave |   .0573018   .0016696    34.32   0.000     .0540291    .0605744
        tmin |  -.0704156   .0017975   -39.17   0.000    -.0739389   -.0668923
     totalpp |   .0012168   .0008474     1.44   0.151    -.0004441    .0028778
         cdd |    .001076   .0000494    21.79   0.000     .0009792    .0011728
       rhave |           0  (omitted)
       _cons |  -12.51567   .3840684   -32.59   0.000    -13.26848   -11.76286
-------------+----------------------------------------------------------------
     sigma_u |  .26018024
     sigma_e |  .38461141
```

rho	**.31394979**	(fraction of variance due to u_i)

```
 5 . predict Phat
   (option xb assumed; fitted values)

 6 . xtset P_ave FC DOS DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)
   too many variables specified
   r(103);

 7 . xtreg P_ave FC DOS DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.1932                                         min =          1
        Between = 0.0032                                         avg =       11.0
        Overall = 0.1446                                         max =         11

                                                   F(10,18443)       =    2553.33
   corr(u_i, Xb) = 0.0003                          Prob > F          =     0.0000

                                (Std. err. adjusted for 18,444 clusters in user_)
```

P_ave	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
FC	.1146393	.0058556	19.58	0.000	.1031619	.1261168
DOS	.0309626	.0041518	7.46	0.000	.0228248	.0391005
DOS_t	.0863199	.0031821	27.13	0.000	.0800827	.092557
ppdays	.008164	.000783	10.43	0.000	.0066293	.0096987
gt90	-.0256472	.0009232	-27.78	0.000	-.0274568	-.0238376
pmax	.0622514	.0072018	8.64	0.000	.0481352	.0763676
tave	.0573018	.0016696	34.32	0.000	.0540291	.0605744
tmin	-.0704156	.0017975	-39.17	0.000	-.0739389	-.0668923
totalpp	.0012168	.0008474	1.44	0.151	-.0004441	.0028778
cdd	.001076	.0000494	21.79	0.000	.0009792	.0011728
_cons	-12.51567	.3840684	-32.59	0.000	-13.26848	-11.76286
sigma_u	.26018024					
sigma_e	.38461141					
rho	.31394979	(fraction of variance due to u_i)				

```
 8 . predict Phat2
   (option xb assumed; fitted values)

 9 . xtreg Q Phat2##i.cluster, fe vce(robust)
   Phat2:  factor variables may not contain noninteger values
   r(452);

10 . xtreg c.Phat2##i.cluster, fe vce(robust)
   note: 1.cluster omitted because of collinearity.
   note: 2.cluster omitted because of collinearity.
   note: 3.cluster omitted because of collinearity.
   note: 4.cluster omitted because of collinearity.

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.8985                                         min =          1
        Between = 0.0000                                         avg =       11.0
        Overall = 0.0268                                         max =         11
```

```
                                        F(0,18443)        =          .
corr(u_i, Xb) = -0.9850                 Prob > F          =          .

                              (Std. err. adjusted for 18,444 clusters in user_)
------------------------------------------------------------------------------
             |               Robust
       Phat2 | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
     cluster |
           1 |          0  (omitted)
           2 |          0  (omitted)
           3 |          0  (omitted)
           4 |          0  (omitted)
             |
cluster#c.Phat2 |
           0 |          0  (omitted)
           1 |          1          .       .       .            .           .
           2 |          1          .       .       .            .           .
           3 |          1          .       .       .            .           .
           4 |          1          .       .       .            .           .
             |
       _cons |  -.3260851          .       .       .            .           .
-------------+----------------------------------------------------------------
     sigma_u |  .97047831
     sigma_e |   .0599759
         rho |  .99619525   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
11 . xtreg Q c.Phat2##i.cluster, fe vce(tobust)
vcetype tobust not allowed
r(198);
```

```
12 . xtreg Q c.Phat2##i.cluster, fe vce(robust)
note: 1.cluster omitted because of collinearity.
note: 2.cluster omitted because of collinearity.
note: 3.cluster omitted because of collinearity.
note: 4.cluster omitted because of collinearity.

Fixed-effects (within) regression               Number of obs     =    202,507
Group variable: user_                           Number of groups  =     18,444

R-squared:                                      Obs per group:
     Within  = 0.0622                                         min =          1
     Between = 0.0366                                         avg =       11.0
     Overall = 0.0017                                         max =         11

                                                F(5,18443)        =    2180.91
corr(u_i, Xb) = -0.2922                         Prob > F          =     0.0000

                              (Std. err. adjusted for 18,444 clusters in user_)
------------------------------------------------------------------------------
             |               Robust
           Q | Coefficient  std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
       Phat2 |  -.5199396    .018085   -28.75   0.000    -.5553879   -.4844913
             |
     cluster |
           1 |          0  (omitted)
           2 |          0  (omitted)
           3 |          0  (omitted)
           4 |          0  (omitted)
             |
cluster#c.Phat2 |
           1 |  -.0795693   .0222306    -3.58   0.000    -.1231434   -.0359953
           2 |    .049218   .0235613     2.09   0.037     .0030358    .0954003
           3 |   -.045701   .0205275    -2.23   0.026    -.0859367   -.0054652
           4 |  -.0422131     .02039    -2.07   0.038    -.0821793   -.0022469
------------------------------------------------------------------------------
```

_cons	**5.562271**	**.0173032**	**321.46**	**0.000**	**5.528355**	**5.596187**
sigma_u	**.66412648**					
sigma_e	**.4069016**					
rho	**.72706902**	(fraction of variance due to u_i)				

13 . xtreg Q c.Phat2##i.cluster DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)
note: **1.cluster** omitted because of collinearity.
note: **2.cluster** omitted because of collinearity.
note: **3.cluster** omitted because of collinearity.
note: **4.cluster** omitted because of collinearity.

Fixed-effects (within) regression — Number of obs = **202,507**
Group variable: **user_** — Number of groups = **18,444**

R-squared:
Within = **0.1738**
Between = **0.0362**
Overall = **0.0073**

Obs per group:
min = **1**
avg = **11.0**
max = **11**

F(**13,18443**) = **1576.08**
corr(u_i, Xb) = **-0.2230** — Prob > F = **0.0000**

(Std. err. adjusted for **18,444** clusters in **user_**)

Q	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Phat2	**.1832961**	**.0368681**	**4.97**	**0.000**	**.1110312**	**.255561**
cluster						
1	**0**	(omitted)				
2	**0**	(omitted)				
3	**0**	(omitted)				
4	**0**	(omitted)				
cluster#c.Phat2						
1	**-.0795677**	**.0222321**	**-3.58**	**0.000**	**-.1231446**	**-.0359908**
2	**.0487767**	**.0235548**	**2.07**	**0.038**	**.0026072**	**.0949462**
3	**-.0455477**	**.02053**	**-2.22**	**0.027**	**-.0857884**	**-.005307**
4	**-.0421561**	**.0203914**	**-2.07**	**0.039**	**-.0821252**	**-.0021871**
DOS_t	**.0136029**	**.0030145**	**4.51**	**0.000**	**.0076942**	**.0195116**
ppdays	**-.0134122**	**.0003399**	**-39.46**	**0.000**	**-.0140785**	**-.012746**
gt90	**.0141412**	**.0008325**	**16.99**	**0.000**	**.0125093**	**.015773**
pmax	**.0444066**	**.00419**	**10.60**	**0.000**	**.0361938**	**.0526195**
tave	**-.02536**	**.0021684**	**-11.70**	**0.000**	**-.0296102**	**-.0211098**
tmin	**.050078**	**.0026194**	**19.12**	**0.000**	**.0449437**	**.0552122**
totalpp	**-.005582**	**.0006548**	**-8.52**	**0.000**	**-.0068654**	**-.0042985**
cdd	**-.0006707**	**.0000387**	**-17.35**	**0.000**	**-.0007465**	**-.000595**
_cons	**6.050078**	**.2765312**	**21.88**	**0.000**	**5.508051**	**6.592105**
sigma_u	**.66383029**					
sigma_e	**.38193734**					
rho	**.75129668**	(fraction of variance due to u_i)				

```
14 . xtset user_ period_

   Panel variable: user_ (unbalanced)
    Time variable: period_, 2 to 12, but with gaps
            Delta: 1 unit

15 . xtreg P_ave FC#i.cluster DOS#i.cluster, fe vce(robust)
   FC:  factor variables may not contain noninteger values
   r(452);

16 . xtreg P_ave c.FC##i.cluster c.DOS##i.cluster, fe vce(robust)
   note: 1.cluster omitted because of collinearity.
   note: 2.cluster omitted because of collinearity.
   note: 3.cluster omitted because of collinearity.
   note: 4.cluster omitted because of collinearity.

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.0920                                         min =          1
        Between = 0.0009                                         avg =       11.0
        Overall = 0.0032                                         max =         11

                                                   F(10,18443)       =    1706.49
   corr(u_i, Xb) = -0.8458                         Prob > F          =     0.0000

                                (Std. err. adjusted for 18,444 clusters in user_)
```

P_ave	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
FC	.0513026	.0075702	6.78	0.000	.0364644	.0661409
cluster						
1	0	(omitted)				
2	0	(omitted)				
3	0	(omitted)				
4	0	(omitted)				
cluster#c.FC						
1	.0289835	.0099151	2.92	0.003	.0095491	.048418
2	.0059497	.0093955	0.63	0.527	-.0124663	.0243657
3	-.0004838	.0088985	-0.05	0.957	-.0179258	.0169581
4	.003583	.0084118	0.43	0.670	-.0129048	.0200708
DOS	.1597115	.0041297	38.67	0.000	.151617	.1678061
cluster#c.DOS						
1	-.0152061	.0050837	-2.99	0.003	-.0251706	-.0052416
2	-.0017703	.0054293	-0.33	0.744	-.0124123	.0088716
3	-.0170189	.0046879	-3.63	0.000	-.0262077	-.0078301
4	-.0018037	.0047251	-0.38	0.703	-.0110654	.0074581
_cons	-13.47332	.0813095	-165.70	0.000	-13.63269	-13.31394
sigma_u	.51009172					
sigma_e	.40803059					
rho	.60980599	(fraction of variance due to u_i)				

```
17 . predict Phat3
   (option xb assumed; fitted values)

18 . xtreg P_ave c.FC##i.cluster c.DOS##i.cluster c.DOS_t##i.cluster c.ppdays##i.cluster c.gt90##i.cluster c.pmax##i.cluste
   > i.cluster c.totalpp##i.cluster c.cdd##i.cluster, fe vce(robust)
   note: 1.cluster omitted because of collinearity.
   note: 2.cluster omitted because of collinearity.
   note: 3.cluster omitted because of collinearity.
   note: 4.cluster omitted because of collinearity.

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.1955                                         min =          1
        Between = 0.0052                                         avg =       11.0
        Overall = 0.0000                                         max =         11

                                                   F(50,18443)       =     530.42
   corr(u_i, Xb) = -0.9811                         Prob > F          =     0.0000

                                  (Std. err. adjusted for 18,444 clusters in user_)
   ------------------------------------------------------------------------------
                |               Robust
          P_ave |  Coefficient  std. err.      t    P>|t|     [95% conf. interval]
   -------------+----------------------------------------------------------------
             FC |    .0770007   .0198414     3.88   0.000     .0381097    .1158916
                |
        cluster |
              1 |          0  (omitted)
              2 |          0  (omitted)
              3 |          0  (omitted)
              4 |          0  (omitted)
                |
    cluster#c.FC |
              1 |    .1187568   .0240171     4.94   0.000      .071681    .1658326
              2 |   -.0443897   .0251841    -1.76   0.078     -.093753    .0049736
              3 |    .0556791   .0226466     2.46   0.014     .0112897    .1000686
              4 |    .0061613   .0224182     0.27   0.783    -.0377806    .0501031
                |
            DOS |    .0426491   .0152694     2.79   0.005     .0127197    .0725785
                |
    cluster#c.DOS |
              1 |   -.0413113   .0182835    -2.26   0.024    -.0771487   -.0054739
              2 |    .0392048   .0191226     2.05   0.040     .0017228    .0766868
              3 |    -.022741   .0169257    -1.34   0.179     -.055917     .010435
              4 |   -.0044092   .0168013    -0.26   0.793    -.0373414     .028523
                |
         DOS_t |    .0893877   .0120006     7.45   0.000     .0658653      .11291
                |
   cluster#c.DOS_t |
              1 |   -.0287745    .013922    -2.07   0.039    -.0560629   -.0014862
              2 |    .0363853    .014841     2.45   0.014     .0072955    .0654751
              3 |   -.0161866   .0133357    -1.21   0.225    -.0423257    .0099526
              4 |    .0114584   .0132558     0.86   0.387    -.0145242    .0374409
                |
         ppdays |    .0085947   .0029474     2.92   0.004     .0028175    .0143719
                |
   cluster#c.ppdays |
              1 |   -.0036598   .0034655    -1.06   0.291    -.0104525    .0031329
              2 |    .0086805   .0036818     2.36   0.018     .0014639    .0158971
              3 |   -.0026913   .0032509    -0.83   0.408    -.0090634    .0036808
              4 |     .000123   .0032468     0.04   0.970     -.006241     .006487
                |
           gt90 |   -.0182672     .00315    -5.80   0.000    -.0244415   -.0120929
                |
     cluster#c.gt90 |
```

1	-.0197907	.003789	-5.22	0.000	-.0272174	-.012364
2	.0077586	.0040595	1.91	0.056	-.0001985	.0157156
3	-.0130645	.0035759	-3.65	0.000	-.0200737	-.0060554
4	-.0014108	.0035571	-0.40	0.692	-.0083831	.0055615
pmax	.0502041	.0262724	1.91	0.056	-.0012922	.1017005
cluster#c.pmax						
1	.0485908	.0313455	1.55	0.121	-.0128493	.1100309
2	-.0584278	.0334358	-1.75	0.081	-.1239651	.0071095
3	.0190062	.0290553	0.65	0.513	-.0379449	.0759573
4	.0123224	.029123	0.42	0.672	-.0447613	.0694062
tave	.0444233	.0056527	7.86	0.000	.0333436	.0555031
cluster#c.tave						
1	.037705	.0068095	5.54	0.000	.0243578	.0510522
2	-.0215592	.0073405	-2.94	0.003	-.0359473	-.0071711
3	.024675	.0064199	3.84	0.000	.0120915	.0372585
4	.0016895	.0063993	0.26	0.792	-.0108537	.0142328
tmin	-.0608238	.0063949	-9.51	0.000	-.0733584	-.0482892
cluster#c.tmin						
1	-.0311943	.0076454	-4.08	0.000	-.0461799	-.0162086
2	.0224492	.0081064	2.77	0.006	.0065599	.0383385
3	-.0184873	.0071679	-2.58	0.010	-.0325371	-.0044374
4	-.001564	.0071244	-0.22	0.826	-.0155285	.0124004
totalpp	.0019404	.0028159	0.69	0.491	-.003579	.0074599
cluster#c.totalpp						
1	.0007052	.003411	0.21	0.836	-.0059807	.0073911
2	-.0036577	.0038765	-0.94	0.345	-.011256	.0039405
3	.0011858	.0031873	0.37	0.710	-.0050615	.0074332
4	-.0027125	.0031969	-0.85	0.396	-.0089786	.0035537
cdd	.0009224	.0001793	5.14	0.000	.000571	.0012739
cluster#c.cdd						
1	.0005145	.0002143	2.40	0.016	.0000945	.0009344
2	-.0003791	.0002245	-1.69	0.091	-.0008191	.0000608
3	.0002791	.0001998	1.40	0.162	-.0001124	.0006707
4	.000039	.0001986	0.20	0.844	-.0003503	.0004283
_cons	-12.51553	.3839707	-32.60	0.000	-13.26815	-11.76292
sigma_u	1.5441551					
sigma_e	.38410686					
rho	.94172953	(fraction of variance due to u_i)				

19 . predict Phat4
(option **xb** assumed; fitted values)

```
20 . xtreg Q c.Phat4##i.cluster DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)
   note: 1.cluster omitted because of collinearity.
   note: 2.cluster omitted because of collinearity.
   note: 3.cluster omitted because of collinearity.
   note: 4.cluster omitted because of collinearity.

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.1738                                         min =          1
        Between = 0.0401                                         avg =       11.0
        Overall = 0.0026                                         max =         11

                                                   F(13,18443)       =    1577.50
   corr(u_i, Xb) = -0.5438                         Prob > F          =     0.0000

                                (Std. err. adjusted for 18,444 clusters in user_)
------------------------------------------------------------------------------
             Q | Coefficient  Robust std. err.      t    P>|t|     [95% conf. interval]
---------------+--------------------------------------------------------------
          Phat4 |  -.1432063    .033404    -4.29   0.000    -.2086812   -.0777315

        cluster |
              1 |          0  (omitted)
              2 |          0  (omitted)
              3 |          0  (omitted)
              4 |          0  (omitted)

   cluster#c.Phat4 |
              1 |  -.0815826   .0220396    -3.70   0.000    -.1247822    -.038383
              2 |   .0287024   .0231726     1.24   0.215    -.0167179    .0741228
              3 |  -.0601957   .0206403    -2.92   0.004    -.1006527   -.0197388
              4 |  -.0350511   .0200181    -1.75   0.080    -.0742884    .0041862

          DOS_t |   .0474048   .0027889    17.00   0.000     .0419384    .0528713
         ppdays |  -.0121416   .0003272   -37.11   0.000    -.0127829   -.0115003
           gt90 |   .0116858   .0007957    14.69   0.000     .0101263    .0132454
           pmax |   .0866362   .0039565    21.90   0.000     .0788811    .0943913
           tave |  -.0141293   .0019857    -7.12   0.000    -.0180214   -.0102372
           tmin |   .0310224   .0023216    13.36   0.000     .0264717     .035573
        totalpp |  -.0104419   .0006959   -15.00   0.000     -.011806   -.0090777
            cdd |  -.0004109   .0000349   -11.79   0.000    -.0004792   -.0003426
          _cons |    3.11397   .2475755    12.58   0.000     2.628699    3.599241
---------------+--------------------------------------------------------------
        sigma_u |  .76961126
        sigma_e |  .38193735
            rho |  .80238342   (fraction of variance due to u_i)
------------------------------------------------------------------------------

21 . xtreg P_ave c.FC##i.cluster c.DOS##i.cluster DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)
   note: 1.cluster omitted because of collinearity.
   note: 2.cluster omitted because of collinearity.
   note: 3.cluster omitted because of collinearity.
   note: 4.cluster omitted because of collinearity.

   Fixed-effects (within) regression               Number of obs     =    202,507
   Group variable: user_                           Number of groups  =     18,444

   R-squared:                                      Obs per group:
        Within  = 0.1935                                         min =          1
        Between = 0.0009                                         avg =       11.0
        Overall = 0.0173                                         max =         11
```

F(18,18443) = 1447.79
corr(u_i, Xb) = -0.8127 Prob > F = 0.0000

(Std. err. adjusted for 18,444 clusters in user_)

P_ave	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
FC	.1066345	.009215	11.57	0.000	.0885723	.1246967
cluster						
1	0	(omitted)				
2	0	(omitted)				
3	0	(omitted)				
4	0	(omitted)				
cluster#c.FC						
1	.0290203	.0099223	2.92	0.003	.0095716	.0484691
2	.0058896	.009391	0.63	0.531	-.0125177	.0242969
3	-.0003887	.0089029	-0.04	0.965	-.0178392	.0170618
4	.0035902	.008418	0.43	0.670	-.0129098	.0200903
DOS	.0396834	.0056772	6.99	0.000	.0285556	.0508112
cluster#c.DOS						
1	-.0151562	.0050847	-2.98	0.003	-.0251227	-.0051897
2	-.0016445	.0054318	-0.30	0.762	-.0122914	.0090024
3	-.0170185	.0046897	-3.63	0.000	-.0262107	-.0078262
4	-.0017636	.0047271	-0.37	0.709	-.0110292	.007502
DOS_t	.0863192	.0031821	27.13	0.000	.0800821	.0925563
ppdays	.0081636	.000783	10.43	0.000	.0066289	.0096984
gt90	-.0256474	.0009232	-27.78	0.000	-.027457	-.0238377
pmax	.0622555	.0072019	8.64	0.000	.0481391	.0763719
tave	.0573018	.0016697	34.32	0.000	.054029	.0605745
tmin	-.070416	.0017975	-39.17	0.000	-.0739394	-.0668927
totalpp	.0012166	.0008474	1.44	0.151	-.0004444	.0028776
cdd	.001076	.0000494	21.79	0.000	.0009792	.0011728
_cons	-12.51544	.3840306	-32.59	0.000	-13.26817	-11.7627
sigma_u	.51050141					
sigma_e	.38454918					
rho	.6379883	(fraction of variance due to u_i)				

22 . predict Phat5
(option xb assumed; fitted values)

23 . xtreg Q Phat5 DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)

Fixed-effects (within) regression Number of obs = 202,507
Group variable: user_ Number of groups = 18,444

R-squared: Obs per group:
Within = 0.1735 min = 1
Between = 0.0108 avg = 11.0
Overall = 0.0594 max = 11

F(9,18443) = 2250.75
corr(u_i, Xb) = -0.0048 Prob > F = 0.0000

(Std. err. adjusted for **18,444** clusters in **user_**)

Q	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Phat5	**.1665322**	**.0338142**	**4.92**	**0.000**	**.1002533**	**.2328111**
DOS_t	**.0116789**	**.0030741**	**3.80**	**0.000**	**.0056534**	**.0177044**
ppdays	**-.0134846**	**.0003411**	**-39.53**	**0.000**	**-.0141532**	**-.012816**
gt90	**.0142761**	**.0008335**	**17.13**	**0.000**	**.0126423**	**.0159099**
pmax	**.0419936**	**.0042655**	**9.85**	**0.000**	**.0336329**	**.0503543**
tave	**-.0259827**	**.0021726**	**-11.96**	**0.000**	**-.0302412**	**-.0217242**
tmin	**.0511578**	**.0026355**	**19.41**	**0.000**	**.0459919**	**.0563236**
totalpp	**-.0053059**	**.0006706**	**-7.91**	**0.000**	**-.0066202**	**-.0039915**
cdd	**-.0006857**	**.0000389**	**-17.61**	**0.000**	**-.0007621**	**-.0006094**
_cons	**6.213867**	**.2804319**	**22.16**	**0.000**	**5.664195**	**6.76354**
sigma_u	**.62571894**					
sigma_e	**.381995**					
rho	**.72849249**	(fraction of variance due to u_i)				

24 . xtreg Q c.Phat5##i.cluster DOS_t ppdays gt90 pmax tave tmin totalpp cdd, fe vce(robust)
note: **1.cluster** omitted because of collinearity.
note: **2.cluster** omitted because of collinearity.
note: **3.cluster** omitted because of collinearity.
note: **4.cluster** omitted because of collinearity.

Fixed-effects (within) regression — Number of obs = **202,507**
Group variable: **user_** — Number of groups = **18,444**

R-squared:
Within = **0.1738**
Between = **0.0179**
Overall = **0.0177**

Obs per group:
min = **1**
avg = **11.0**
max = **11**

F(**13,18443**) = **1576.84**
corr(u_i, Xb) = **-0.1551** — Prob > F = **0.0000**

(Std. err. adjusted for **18,444** clusters in **user_**)

Q	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
Phat5	**.1796438**	**.0371872**	**4.83**	**0.000**	**.1067534**	**.2525341**
cluster						
1	**0**	(omitted)				
2	**0**	(omitted)				
3	**0**	(omitted)				
4	**0**	(omitted)				
cluster#c.Phat5						
1	**-.0734497**	**.022078**	**-3.33**	**0.001**	**-.1167247**	**-.0301747**
2	**.0484964**	**.023142**	**2.10**	**0.036**	**.0031359**	**.0938568**
3	**-.0375286**	**.0205476**	**-1.83**	**0.068**	**-.0778038**	**.0027466**
4	**-.0410296**	**.0200549**	**-2.05**	**0.041**	**-.080339**	**-.0017201**
DOS_t	**.013698**	**.0031228**	**4.39**	**0.000**	**.007577**	**.0198191**
ppdays	**-.0133888**	**.0003422**	**-39.13**	**0.000**	**-.0140596**	**-.0127181**
gt90	**.0141667**	**.000837**	**16.93**	**0.000**	**.0125261**	**.0158072**
pmax	**.0441554**	**.0043113**	**10.24**	**0.000**	**.035705**	**.0526059**
tave	**-.0254034**	**.002189**	**-11.60**	**0.000**	**-.0296941**	**-.0211127**
tmin	**.0501491**	**.0026645**	**18.82**	**0.000**	**.0449263**	**.0553718**
totalpp	**-.0055803**	**.0006673**	**-8.36**	**0.000**	**-.0068884**	**-.0042723**
cdd	**-.0006727**	**.0000394**	**-17.09**	**0.000**	**-.0007499**	**-.0005956**
_cons	**6.038645**	**.285539**	**21.15**	**0.000**	**5.478962**	**6.598327**

sigma_u	**.65101421**	
sigma_e	**.38193675**	
rho	**.74394082**	(fraction of variance due to u_i)

25 .