Statistics/Data Analysis

```
      name:  <unnamed>
       log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_3_
> schpoc_mi100_linear_100919.smcl
  log type:  smcl
 opened on:   9 Oct 2019, 22:47:23

1 . ** ------------------------------------------------------
2 . ** MIXED-EFFECTS LINEAR MODELS PT 3: IBL, ACADEMICS -> RACE
3 . ** ------------------------------------------------------
4 .
5 . * Sequence of models:
6 . * 0. controls only
7 . * 1. IBL
8 . * 2. academic performance
9 . * 3. fully specified
10.
11. * 0. controls only
12. mi xeq 1 / 5: mixed pocschoolprop primary middle high lnage lnstudents urban || stat
  > e: || geodistrict: ,

  m=1 data:
  -> mixed pocschoolprop primary middle high lnage lnstudents urban || state: || geodist
  > rict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  655.79514
  Iteration 1:   log likelihood =  655.79515

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,881
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

```
                                                Wald chi2(6)      =     231.66
  Log likelihood =  655.79515                   Prob > chi2       =     0.0000
```

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0442498	.0071754	6.17	0.000	.0301862	.0583133
middle	.0702074	.0105727	6.64	0.000	.0494853	.0909295
high	.0567529	.00854	6.65	0.000	.0400147	.0734911
lnage	-.0160958	.003036	-5.30	0.000	-.0220462	-.0101455
lnstudents	.0043047	.0033355	1.29	0.197	-.0022328	.0108423
urban	.1044967	.0090794	11.51	0.000	.0867013	.122292
_cons	.4353997	.0352326	12.36	0.000	.3663451	.5044544

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0306641	.0079753	.0184181	.0510522
geodistrict: Identity var(_cons)	.0397701	.0022307	.0356298	.0443916
var(Residual)	.0332323	.0007098	.0318698	.0346531

```
LR test vs. linear model: chi2(2) = 3051.30                   Prob > chi2 = 0.0000
```

Note: LR test is conservative and provided only for reference.

m=2 data:
-> **mixed pocschoolprop primary middle high lnage lnstudents urban || state: || geodist**
> rict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **655.79514**
Iteration 1: log likelihood = **655.79515**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **655.79515**

Wald chi2(**6**) = **231.66**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	**.0442498**	**.0071754**	**6.17**	**0.000**	**.0301862**	**.0583133**
middle	**.0702074**	**.0105727**	**6.64**	**0.000**	**.0494853**	**.0909295**
high	**.0567529**	**.00854**	**6.65**	**0.000**	**.0400147**	**.0734911**
lnage	**-.0160958**	**.003036**	**-5.30**	**0.000**	**-.0220462**	**-.0101455**
lnstudents	**.0043047**	**.0033355**	**1.29**	**0.197**	**-.0022328**	**.0108423**
urban	**.1044967**	**.0090794**	**11.51**	**0.000**	**.0867013**	**.122292**
_cons	**.4353997**	**.0352326**	**12.36**	**0.000**	**.3663451**	**.5044544**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0306641**	**.0079753**	**.0184181**	**.0510522**
geodistrict: Identity var(_cons)	**.0397701**	**.0022307**	**.0356298**	**.0443916**
var(Residual)	**.0332323**	**.0007098**	**.0318698**	**.0346531**

LR test vs. linear model: chi2(**2**) = **3051.30** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=3 data:
-> **mixed pocschoolprop primary middle high lnage lnstudents urban || state: || geodist**
> rict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **655.79514**
Iteration 1: log likelihood = **655.79515**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **655.79515**

Wald chi2(**6**) = **231.66**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	**.0442498**	**.0071754**	**6.17**	**0.000**	**.0301862**	**.0583133**
middle	**.0702074**	**.0105727**	**6.64**	**0.000**	**.0494853**	**.0909295**
high	**.0567529**	**.00854**	**6.65**	**0.000**	**.0400147**	**.0734911**
lnage	**-.0160958**	**.003036**	**-5.30**	**0.000**	**-.0220462**	**-.0101455**
lnstudents	**.0043047**	**.0033355**	**1.29**	**0.197**	**-.0022328**	**.0108423**
urban	**.1044967**	**.0090794**	**11.51**	**0.000**	**.0867013**	**.122292**
_cons	**.4353997**	**.0352326**	**12.36**	**0.000**	**.3663451**	**.5044544**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0306641**	**.0079753**	**.0184181**	**.0510522**
geodistrict: Identity var(_cons)	**.0397701**	**.0022307**	**.0356298**	**.0443916**
var(Residual)	**.0332323**	**.0007098**	**.0318698**	**.0346531**

LR test vs. linear model: chi2(**2**) = **3051.30** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=4 data:
-> **mixed pocschoolprop primary middle high lnage lnstudents urban || state: || geodist**
> rict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **655.79514**
Iteration 1: log likelihood = **655.79515**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **655.79515**

Wald chi2(**6**) = **231.66**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0442498	.0071754	6.17	0.000	.0301862	.0583133
middle	.0702074	.0105727	6.64	0.000	.0494853	.0909295
high	.0567529	.00854	6.65	0.000	.0400147	.0734911
lnage	-.0160958	.003036	-5.30	0.000	-.0220462	-.0101455
lnstudents	.0043047	.0033355	1.29	0.197	-.0022328	.0108423
urban	.1044967	.0090794	11.51	0.000	.0867013	.122292
_cons	.4353997	.0352326	12.36	0.000	.3663451	.5044544

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0306641	.0079753	.0184181	.0510522
geodistrict: Identity var(_cons)	.0397701	.0022307	.0356298	.0443916
var(Residual)	.0332323	.0007098	.0318698	.0346531

LR test vs. linear model: chi2(**2**) = **3051.30** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=5 data:
-> **mixed pocschoolprop primary middle high lnage lnstudents urban || state: || geodist**
> rict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **655.79514**
Iteration 1: log likelihood = **655.79515**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	43	2	136.8	1,080
geodistrict	1,507	1	3.9	256

Log likelihood = **655.79515** Wald chi2(**6**) = **231.66**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0442498	.0071754	6.17	0.000	.0301862	.0583133
middle	.0702074	.0105727	6.64	0.000	.0494853	.0909295
high	.0567529	.00854	6.65	0.000	.0400147	.0734911
lnage	-.0160958	.003036	-5.30	0.000	-.0220462	-.0101455
lnstudents	.0043047	.0033355	1.29	0.197	-.0022328	.0108423
urban	.1044967	.0090794	11.51	0.000	.0867013	.122292
_cons	.4353997	.0352326	12.36	0.000	.3663451	.5044544

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0306641**	**.0079753**	**.0184181**	**.0510522**
geodistrict: Identity var(_cons)	**.0397701**	**.0022307**	**.0356298**	**.0443916**
var(Residual)	**.0332323**	**.0007098**	**.0318698**	**.0346531**

LR test vs. linear model: chi2(**2**) = **3051.30** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

13. mi est, dots post: mixed pocschoolprop primary middle high lnage lnstudents urban ||
> state: || geodistrict: ,

Imputations (**100**):
.....10.....20.....30.....40.....50.....60.....70.....
> ..80.....90.....100 done

Multiple-imputation estimates Imputations = **100**
Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Average RVI = **0.0000**
Largest FMI = **0.0000**
DF adjustment: **Large sample** DF: min = **.**
avg = **.**
max = **.**
Model F test: **Equal FMI** F(6, .) = **38.61**
Prob > F = **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**.0442498**	**.0071754**	**6.17**	**0.000**	**.0301862**	**.0583133**
middle	**.0702074**	**.0105727**	**6.64**	**0.000**	**.0494853**	**.0909295**
high	**.0567529**	**.00854**	**6.65**	**0.000**	**.0400147**	**.0734911**
lnage	**-.0160958**	**.003036**	**-5.30**	**0.000**	**-.0220462**	**-.0101455**
lnstudents	**.0043047**	**.0033355**	**1.29**	**0.197**	**-.0022328**	**.0108423**
urban	**.1044967**	**.0090794**	**11.51**	**0.000**	**.0867013**	**.122292**
_cons	**.4353997**	**.0352326**	**12.36**	**0.000**	**.3663451**	**.5044544**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1751115**	**.0227719**	**.1357133**	**.2259473**
geodistrict: Identity sd(_cons)	**.1994245**	**.0055929**	**.1887585**	**.2106933**
sd(Residual)	**.1822974**	**.0019469**	**.1785213**	**.1861534**

```
14. est store poc0

15. ereturn list

  scalars:
                  e(small) =  0
               e(nrgroups) =  1
                   e(ll_c) =  .
                   e(k_rs) =  3
                      e(N) =  5881
                   e(df_c) =  .
                   e(k_rc) =  0
                     e(rc) =  0
                      e(k) =  10
                  e(k_res) =  0
              e(converged) =  1
              e(se_failed) =  0
                    e(k_r) =  3
                     e(ll) =  .
                  e(mecmd) =  0
                 e(chi2_c) =  .
                     e(ic) =  1
               e(nostderr) =  0
                   e(df_m) =  .
                      e(p) =  .
                    e(p_c) =  .
                    e(k_f) =  7
                   e(rank) =  .
                   e(chi2) =  .
            e(_dfnote_mi) =  1
            e(mcerror_mi) =  0
              e(N_min_mi) =  5881
              e(N_max_mi) =  5881
            e(cilevel_mi) =  95
              e(k_exp_mi) =  0
         e(reparm_rc_mi) =  .
        e(k_eq_model_mi) =  4
            e(caller_mi) =  15.1
            e(df_min_mi) =  .
            e(df_avg_mi) =  .
            e(df_max_mi) =  .
            e(fmi_max_mi) =  0
            e(rvi_avg_mi) =  0
                  e(p_mi) =  3.38420859490e-47
              e(ufmi_mi) =  0
         e(rvi_avg_F_mi) =  0
                  e(F_mi) =  38.61025270695743
               e(df_m_mi) =  6
               e(df_r_mi) =  .
               e(df_c_mi) =  .
                  e(N_mi) =  5881
                  e(M_mi) =  100
         e(esampvary_mi) =  0

  macros:
                   e(cmd) : "mixed"
           e(rstructure) : "independent"
           e(rstructlab) : "Independent"
                e(iccok) : "ok"
                e(redim) : "1 1"
            e(optmetric) : "matsqrt"
  e(datasignaturevars) : "pocschoolprop primary middle high lnage lnstudents urban sta
> te.."
             e(vartypes) : "Identity Identity"
                e(title) : "Mixed-effects ML regression"
            e(stripe_se) : "pocschoolprop:primary pocschoolprop:middle pocschoolprop:hig
> h .."
             e(chi2type) : "Wald"
            e(ml_method) : "d0"
               e(depvar) : "pocschoolprop"
                  e(opt) : "moptimize"
             e(crittype) : "log likelihood"
```

```
              e(revars) : "_cons _cons"
               e(ivars) : "state geodistrict"
              e(method) : "ML"
           e(technique) : "nr"
             e(cmdline) : "mixed pocschoolprop primary middle high lnage lnstudents urb
> an.."
       e(datasignature) : "5881:9:2247698195:1268586427"
                e(m_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
            e(m_est_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
              e(rc_mi) : "0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
> 0 .."
          e(dfadjust_mi) : "Large sample"
         e(modeltest_mi) : "Equal FMI"
             e(title_mi) : "Multiple-imputation estimates"
            e(prefix_mi) : "mi estimate"
               e(cmd_mi) : "mixed"
              e(ecmd_mi) : "mixed"
                   e(mi) : "mi"
           e(cmdline_mi) : "mi estimate , dots post: mixed pocschoolprop primary middle
> hi.."
         e(_sortseed_mi) : "1030059385XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
       e(_sortseedcmd_mi) : "299079241XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa12
> 01.."
           e(properties) : "b V"

  matrices:
                      e(b) :  1 x 10
                      e(V) :  10 x 10
                   e(b_sd) :  1 x 10
                 e(noomit) :  1 x 7
               e(b_pclass) :  1 x 10
                  e(g_min) :  1 x 2
                  e(se_sd) :  1 x 10
                  e(g_max) :  1 x 2
                  e(g_avg) :  1 x 2
                    e(N_g) :  1 x 2
                   e(V_sd) :  10 x 10
                  e(re_mi) :  1 x 10
                 e(fmi_mi) :  1 x 10
                e(pise_mi) :  1 x 10
                 e(rvi_mi) :  1 x 10
                  e(df_mi) :  1 x 10
                   e(W_mi) :  10 x 10
                   e(B_mi) :  10 x 10
                   e(V_mi) :  10 x 10
                   e(b_mi) :  1 x 10
                 e(N_g_mi) :  1 x 2
               e(g_min_mi) :  1 x 2
               e(g_avg_mi) :  1 x 2
               e(g_max_mi) :  1 x 2

16. est save "model_estimates/3a_schpoc_controls_mi100_linear.ster", replace
  (note: file model_estimates/3a_schpoc_controls_mi100_linear.ster not found)
  file model_estimates/3a_schpoc_controls_mi100_linear.ster saved

17. outreg2 using "tables/3a_schpoc_controls_mi100_linear.rtf", replace word label oneco
  > l addstat(Log-Likelihood, e(ll), chi-square test, r(chi2), F-test, e(p), Prob > F, r
  > (p), R-squared, e(r2)) ///
  > alpha(.001, .01, .05) symbol(***, **, *) ///
  > addnote("", "Sources: American Community Survey 2012-16 (U.S. Census Bureau 2018), C
  > ommon Core of Data 2015-16 (NCES 2018), EdFacts Achievement Results for State Assess
  > ments (USDE 2018), and the author's data collection.") ///
  > title("TABLE 4", "Mixed Effects Models: Effects of IBL Emphasis and Academic Profici
  > ency on Number of Students of Color") ///
  > ctitle("M0: Controls only")
  (note: file tables/3a_schpoc_controls_mi100_linear.rtf not found)
  tables/3a_schpoc_controls_mi100_linear.rtf
  seeout
```

```
18.
19. * 1. IBL
20. mi xeq 1 / 5: mixed pocschoolprop inquiry_full_log primary middle high lnage lnstude
  > nts urban pctpdfs || state: || geodistrict: ,

  m=1 data:
  -> mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct
  > pdfs || state: || geodistrict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  732.75341
  Iteration 1:   log likelihood =  732.75341

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,881
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

```
                                                Wald chi2(8)      =     391.70
Log likelihood =  732.75341                     Prob > chi2       =     0.0000
```

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2869656	.023049	-12.45	0.000	-.3321407	-.2417904
primary	.0445076	.007076	6.29	0.000	.0306388	.0583764
middle	.0658935	.0104316	6.32	0.000	.0454478	.0863391
high	.0542665	.0084235	6.44	0.000	.0377567	.0707763
lnage	-.0168704	.0029947	-5.63	0.000	-.02274	-.0110009
lnstudents	.0075285	.0033015	2.28	0.023	.0010577	.0139994
urban	.1071006	.0089739	11.93	0.000	.0895121	.124689
pctpdfs	.1071818	.0601428	1.78	0.075	-.0106958	.2250594
_cons	.4590667	.0348373	13.18	0.000	.3907869	.5273465

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.029871**	**.0077758**	**.0179337**	**.0497542**
geodistrict: Identity var(_cons)	**.0394038**	**.0022035**	**.0353132**	**.0439682**
var(Residual)	**.0322631**	**.0006898**	**.030939**	**.0336438**

```
LR test vs. linear model: chi2(2) = 2998.19                   Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

m=2 data:
-> mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct
> pdfs || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood =  732.75341
Iteration 1:   log likelihood =  732.75341
```

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **732.75341**

Wald chi2(**8**) = **391.70**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2869656**	**.023049**	**-12.45**	**0.000**	**-.3321407**	**-.2417904**
primary	**.0445076**	**.007076**	**6.29**	**0.000**	**.0306388**	**.0583764**
middle	**.0658935**	**.0104316**	**6.32**	**0.000**	**.0454478**	**.0863391**
high	**.0542665**	**.0084235**	**6.44**	**0.000**	**.0377567**	**.0707763**
lnage	**-.0168704**	**.0029947**	**-5.63**	**0.000**	**-.02274**	**-.0110009**
lnstudents	**.0075285**	**.0033015**	**2.28**	**0.023**	**.0010577**	**.0139994**
urban	**.1071006**	**.0089739**	**11.93**	**0.000**	**.0895121**	**.124689**
pctpdfs	**.1071818**	**.0601428**	**1.78**	**0.075**	**-.0106958**	**.2250594**
_cons	**.4590667**	**.0348373**	**13.18**	**0.000**	**.3907869**	**.5273465**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.029871**	**.0077758**	**.0179337**	**.0497542**
geodistrict: Identity var(_cons)	**.0394038**	**.0022035**	**.0353132**	**.0439682**
var(Residual)	**.0322631**	**.0006898**	**.030939**	**.0336438**

LR test vs. linear model: chi2(**2**) = **2998.19** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=3 data:
-> **mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct**
> pdfs || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **732.75341**
Iteration 1: log likelihood = **732.75341**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **732.75341**

Wald chi2(**8**) = **391.70**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2869656	.023049	-12.45	0.000	-.3321407	-.2417904
primary	.0445076	.007076	6.29	0.000	.0306388	.0583764
middle	.0658935	.0104316	6.32	0.000	.0454478	.0863391
high	.0542665	.0084235	6.44	0.000	.0377567	.0707763
lnage	-.0168704	.0029947	-5.63	0.000	-.02274	-.0110009
lnstudents	.0075285	.0033015	2.28	0.023	.0010577	.0139994
urban	.1071006	.0089739	11.93	0.000	.0895121	.124689
pctpdfs	.1071818	.0601428	1.78	0.075	-.0106958	.2250594
_cons	.4590667	.0348373	13.18	0.000	.3907869	.5273465

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.029871	.0077758	.0179337	.0497542
geodistrict: Identity var(_cons)	.0394038	.0022035	.0353132	.0439682
var(Residual)	.0322631	.0006898	.030939	.0336438

LR test vs. linear model: chi2(**2**) = **2998.19** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=4 data:
-> **mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct**
> pdfs || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **732.75341**
Iteration 1: log likelihood = **732.75341**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Wald chi2(**8**) = **391.70**
Log likelihood = **732.75341** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2869656	.023049	-12.45	0.000	-.3321407	-.2417904
primary	.0445076	.007076	6.29	0.000	.0306388	.0583764
middle	.0658935	.0104316	6.32	0.000	.0454478	.0863391
high	.0542665	.0084235	6.44	0.000	.0377567	.0707763
lnage	-.0168704	.0029947	-5.63	0.000	-.02274	-.0110009
lnstudents	.0075285	.0033015	2.28	0.023	.0010577	.0139994
urban	.1071006	.0089739	11.93	0.000	.0895121	.124689
pctpdfs	.1071818	.0601428	1.78	0.075	-.0106958	.2250594
_cons	.4590667	.0348373	13.18	0.000	.3907869	.5273465

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.029871**	**.0077758**	**.0179337**	**.0497542**
geodistrict: Identity var(_cons)	**.0394038**	**.0022035**	**.0353132**	**.0439682**
var(Residual)	**.0322631**	**.0006898**	**.030939**	**.0336438**

LR test vs. linear model: chi2(**2**) = **2998.19** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=5 data:
-> **mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct**
> pdfs || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **732.75341**
Iteration 1: log likelihood = **732.75341**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Wald chi2(**8**) = **391.70**
Log likelihood = **732.75341** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2869656**	**.023049**	**-12.45**	**0.000**	**-.3321407**	**-.2417904**
primary	**.0445076**	**.007076**	**6.29**	**0.000**	**.0306388**	**.0583764**
middle	**.0658935**	**.0104316**	**6.32**	**0.000**	**.0454478**	**.0863391**
high	**.0542665**	**.0084235**	**6.44**	**0.000**	**.0377567**	**.0707763**
lnage	**-.0168704**	**.0029947**	**-5.63**	**0.000**	**-.02274**	**-.0110009**
lnstudents	**.0075285**	**.0033015**	**2.28**	**0.023**	**.0010577**	**.0139994**
urban	**.1071006**	**.0089739**	**11.93**	**0.000**	**.0895121**	**.124689**
pctpdfs	**.1071818**	**.0601428**	**1.78**	**0.075**	**-.0106958**	**.2250594**
_cons	**.4590667**	**.0348373**	**13.18**	**0.000**	**.3907869**	**.5273465**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.029871**	**.0077758**	**.0179337**	**.0497542**
geodistrict: Identity var(_cons)	**.0394038**	**.0022035**	**.0353132**	**.0439682**
var(Residual)	**.0322631**	**.0006898**	**.030939**	**.0336438**

LR test vs. linear model: chi2(**2**) = **2998.19** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

```
21. mi est, dots post: mixed pocschoolprop inquiry_full_log primary middle high lnage ln
  > students urban pctpdfs || state: || geodistrict: ,

  Imputations (100):
    .........10.........20.........30.........40.........50.........60.........70.......
  > ..80.........90.........100 done

  Multiple-imputation estimates                   Imputations       =        100
  Mixed-effects ML regression                     Number of obs     =      5,881
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

```
                                                  Average RVI       =     0.0000
                                                  Largest FMI       =     0.0000
  DF adjustment:   Large sample                   DF:     min       =          .
                                                          avg       =          .
                                                          max       =          .
  Model F test:       Equal FMI                   F(   8,     .)    =      48.96
                                                  Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_log	**-.2869656**	**.023049**	**-12.45**	**0.000**	**-.3321407**	**-.2417904**
primary	**.0445076**	**.007076**	**6.29**	**0.000**	**.0306388**	**.0583764**
middle	**.0658935**	**.0104316**	**6.32**	**0.000**	**.0454478**	**.0863391**
high	**.0542665**	**.0084235**	**6.44**	**0.000**	**.0377567**	**.0707763**
lnage	**-.0168704**	**.0029947**	**-5.63**	**0.000**	**-.02274**	**-.0110009**
lnstudents	**.0075285**	**.0033015**	**2.28**	**0.023**	**.0010577**	**.0139994**
urban	**.1071006**	**.0089739**	**11.93**	**0.000**	**.0895121**	**.124689**
pctpdfs	**.1071818**	**.0601428**	**1.78**	**0.075**	**-.0106958**	**.2250594**
_cons	**.4590667**	**.0348373**	**13.18**	**0.000**	**.3907869**	**.5273465**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1728324**	**.0224953**	**.1339169**	**.2230565**
geodistrict: Identity sd(_cons)	**.1985038**	**.0055503**	**.187918**	**.2096859**
sd(Residual)	**.1796192**	**.0019202**	**.1758949**	**.1834224**

```
22. est store poc1

23. ereturn list

  scalars:
              e(small) =  0
           e(nrgroups) =  1
               e(ll_c) =  .
               e(k_rs) =  3
                  e(N) =  5881
               e(df_c) =  .
               e(k_rc) =  0
                 e(rc) =  0
                  e(k) =  12
              e(k_res) =  0
          e(converged) =  1
          e(se_failed) =  0
                e(k_r) =  3
                 e(ll) =  .
             e(mecmd) =  0
```

```
            e(chi2_c) =  .
                e(ic) =  1
          e(nostderr) =  0
              e(df_m) =  .
                 e(p) =  .
               e(p_c) =  .
               e(k_f) =  9
              e(rank) =  .
              e(chi2) =  .
        e(_dfnote_mi) =  1
        e(mcerror_mi) =  0
          e(N_min_mi) =  5881
          e(N_max_mi) =  5881
        e(cilevel_mi) =  95
          e(k_exp_mi) =  0
       e(reparm_rc_mi) =  .
      e(k_eq_model_mi) =  4
          e(caller_mi) =  15.1
          e(df_min_mi) =  .
          e(df_avg_mi) =  .
          e(df_max_mi) =  .
        e(fmi_max_mi) =  0
        e(rvi_avg_mi) =  0
              e(p_mi) =  1.11415766494e-79
           e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  0
              e(F_mi) =  48.96294882628974
           e(df_m_mi) =  8
           e(df_r_mi) =  .
           e(df_c_mi) =  .
              e(N_mi) =  5881
              e(M_mi) =  100
       e(esampvary_mi) =  0

macros:
                e(cmd) : "mixed"
         e(rstructure) : "independent"
         e(rstructlab) : "Independent"
              e(iccok) : "ok"
              e(redim) : "1 1"
          e(optmetric) : "matsqrt"
  e(datasignaturevars) : "pocschoolprop inquiry_full_log primary middle high lnage lns
> tu.."
           e(vartypes) : "Identity Identity"
              e(title) : "Mixed-effects ML regression"
          e(stripe_se) : "pocschoolprop:inquiry_full_log pocschoolprop:primary pocscho
> ol.."
           e(chi2type) : "Wald"
          e(ml_method) : "d0"
             e(depvar) : "pocschoolprop"
                e(opt) : "moptimize"
           e(crittype) : "log likelihood"
             e(revars) : "_cons _cons"
              e(ivars) : "state geodistrict"
             e(method) : "ML"
          e(technique) : "nr"
            e(cmdline) : "mixed pocschoolprop inquiry_full_log primary middle high lna
> ge.."
      e(datasignature) : "5881:11:4027149178:702017269"
              e(m_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
          e(m_est_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
             e(rc_mi) : "0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
> 0 .."
         e(dfadjust_mi) : "Large sample"
        e(modeltest_mi) : "Equal FMI"
           e(title_mi) : "Multiple-imputation estimates"
          e(prefix_mi) : "mi estimate"
             e(cmd_mi) : "mixed"
            e(ecmd_mi) : "mixed"
                 e(mi) : "mi"
```

```
          e(cmdline_mi) : "mi estimate , dots post: mixed pocschoolprop inquiry_full_lo
> g .."
        e(_sortseed_mi) : "1664926969XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
     e(_sortseedcmd_mi) : "1885486537XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
          e(properties) : "b V"

  matrices:
                    e(b) :  1 x 12
                    e(V) :  12 x 12
                 e(b_sd) :  1 x 12
               e(noomit) :  1 x 9
             e(b_pclass) :  1 x 12
                e(g_min) :  1 x 2
                e(se_sd) :  1 x 12
                e(g_max) :  1 x 2
                e(g_avg) :  1 x 2
                  e(N_g) :  1 x 2
                 e(V_sd) :  12 x 12
                e(re_mi) :  1 x 12
               e(fmi_mi) :  1 x 12
              e(pise_mi) :  1 x 12
               e(rvi_mi) :  1 x 12
                e(df_mi) :  1 x 12
                 e(W_mi) :  12 x 12
                 e(B_mi) :  12 x 12
                 e(V_mi) :  12 x 12
                 e(b_mi) :  1 x 12
               e(N_g_mi) :  1 x 2
             e(g_min_mi) :  1 x 2
             e(g_avg_mi) :  1 x 2
             e(g_max_mi) :  1 x 2

24. est save "model_estimates/3b_schpoc_ibl_mi100_linear.ster", replace
  (note: file model_estimates/3b_schpoc_ibl_mi100_linear.ster not found)
  file model_estimates/3b_schpoc_ibl_mi100_linear.ster saved

25. outreg2 using "tables/3b_schpoc_ibl_mi100_linear.rtf", replace word label onecol add
  > stat(Log-Likelihood, e(ll), chi-square test, r(chi2), F-test, e(p), Prob > F, r(p),
  > R-squared, e(r2)) ///
  > alpha(.001, .01, .05) symbol(***, **, *) ///
  > ctitle("M1: IBL emphasis")
  (note: file tables/3b_schpoc_ibl_mi100_linear.rtf not found)
  tables/3b_schpoc_ibl_mi100_linear.rtf
  seeout

26.
27. * 2. academic performance
28. mi xeq 1 / 5: mixed pocschoolprop readall15 mathall15 primary middle high lnage lnst
  > udents urban readlevel15 mathlevel15 || state: || geodistrict: ,

  m=1 data:
  -> mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban
  > readlevel15 mathlevel15 || state: || geodistrict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =   1102.678
  Iteration 1:   log likelihood =   1102.678

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,881
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1102.678**

Wald chi2(**10**) = **1229.98**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall15	**-.3822578**	**.0216663**	**-17.64**	**0.000**	**-.4247229**	**-.3397928**
mathall15	**-.0053647**	**.0213977**	**-0.25**	**0.802**	**-.0473034**	**.0365741**
primary	**.0518779**	**.006714**	**7.73**	**0.000**	**.0387187**	**.0650371**
middle	**.0810953**	**.0098661**	**8.22**	**0.000**	**.0617582**	**.1004324**
high	**.0622491**	**.0081198**	**7.67**	**0.000**	**.0463346**	**.0781636**
lnage	**-.0094569**	**.0028186**	**-3.36**	**0.001**	**-.0149813**	**-.0039326**
lnstudents	**.0210525**	**.0034986**	**6.02**	**0.000**	**.0141954**	**.0279096**
urban	**.0930798**	**.0084374**	**11.03**	**0.000**	**.0765429**	**.1096168**
readlevel15	**.0019426**	**.0006172**	**3.15**	**0.002**	**.0007328**	**.0031523**
mathlevel15	**-.0020709**	**.0005941**	**-3.49**	**0.000**	**-.0032353**	**-.0009064**
_cons	**.5216205**	**.0360756**	**14.46**	**0.000**	**.4509136**	**.5923275**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0304975**	**.0076977**	**.0185958**	**.0500163**
geodistrict: Identity var(_cons)	**.0353658**	**.0019945**	**.0316649**	**.0394992**
var(Residual)	**.028316**	**.0006083**	**.0271486**	**.0295336**

LR test vs. linear model: chi2(**2**) = **3451.40** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=2 data:
-> **mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban**
> readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1118.9884**
Iteration 1: log likelihood = **1118.9884**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1118.9884**

Wald chi2(**10**) = **1268.28**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall15	**-.382941**	**.0210902**	**-18.16**	**0.000**	**-.424277**	**-.3416049**
mathall15	**-.0118955**	**.0209382**	**-0.57**	**0.570**	**-.0529336**	**.0291425**
primary	**.0527813**	**.0067034**	**7.87**	**0.000**	**.0396429**	**.0659198**
middle	**.0796912**	**.0098462**	**8.09**	**0.000**	**.0603931**	**.0989893**
high	**.0588793**	**.0080745**	**7.29**	**0.000**	**.0430536**	**.074705**
lnage	**-.010035**	**.0028061**	**-3.58**	**0.000**	**-.0155349**	**-.004535**
lnstudents	**.0213967**	**.0035046**	**6.11**	**0.000**	**.0145278**	**.0282656**
urban	**.0937424**	**.0084179**	**11.14**	**0.000**	**.0772436**	**.1102413**
readlevel15	**.0014263**	**.0005801**	**2.46**	**0.014**	**.0002893**	**.0025633**
mathlevel15	**-.0015135**	**.0005563**	**-2.72**	**0.007**	**-.0026039**	**-.0004231**
_cons	**.5220667**	**.0359307**	**14.53**	**0.000**	**.4516438**	**.5924897**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0299922**	**.0075671**	**.0182914**	**.0491779**
geodistrict: Identity var(_cons)	**.0355961**	**.0019989**	**.0318862**	**.0397376**
var(Residual)	**.0280921**	**.0006035**	**.0269338**	**.0293002**

LR test vs. linear model: chi2(**2**) = **3483.61** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=3 data:
-> **mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban**
> readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1119.3882**
Iteration 1: log likelihood = **1119.3882**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1119.3882**

Wald chi2(**10**) = **1270.30**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall15	**-.3829072**	**.0209538**	**-18.27**	**0.000**	**-.4239759**	**-.3418384**
mathall15	**-.0106098**	**.0207788**	**-0.51**	**0.610**	**-.0513355**	**.0301159**
primary	**.0536126**	**.0066902**	**8.01**	**0.000**	**.0405001**	**.0667251**
middle	**.0816071**	**.0098597**	**8.28**	**0.000**	**.0622823**	**.1009318**
high	**.0588734**	**.0080818**	**7.28**	**0.000**	**.0430334**	**.0747133**
lnage	**-.0107628**	**.002806**	**-3.84**	**0.000**	**-.0162625**	**-.0052631**
lnstudents	**.0221749**	**.0035303**	**6.28**	**0.000**	**.0152557**	**.0290942**
urban	**.0938307**	**.0084142**	**11.15**	**0.000**	**.0773392**	**.1103222**
readlevel15	**.0017028**	**.0005926**	**2.87**	**0.004**	**.0005414**	**.0028642**
mathlevel15	**-.001659**	**.0005718**	**-2.90**	**0.004**	**-.0027797**	**-.0005383**
_cons	**.5188408**	**.0362946**	**14.30**	**0.000**	**.4477046**	**.5899769**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0307756**	**.0077496**	**.0187874**	**.0504135**
geodistrict: Identity var(_cons)	**.0352292**	**.0019823**	**.0315506**	**.0393366**
var(Residual)	**.028142**	**.0006042**	**.0269823**	**.0293515**

LR test vs. linear model: chi2(**2**) = **3498.81** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=4 data:
-> **mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban**
> readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1104.1399**
Iteration 1: log likelihood = **1104.1399**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1104.1399**

Wald chi2(**10**) = **1233.83**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall15	**-.3845961**	**.0213475**	**-18.02**	**0.000**	**-.4264364**	**-.3427558**
mathall15	**-.0014915**	**.0211495**	**-0.07**	**0.944**	**-.0429438**	**.0399608**
primary	**.0521224**	**.0067217**	**7.75**	**0.000**	**.0389482**	**.0652967**
middle	**.0803689**	**.0098701**	**8.14**	**0.000**	**.0610239**	**.0997139**
high	**.0597164**	**.0081296**	**7.35**	**0.000**	**.0437827**	**.07565**
lnage	**-.0109365**	**.0028147**	**-3.89**	**0.000**	**-.0164532**	**-.0054199**
lnstudents	**.0206529**	**.0035128**	**5.88**	**0.000**	**.013768**	**.0275379**
urban	**.094482**	**.0084339**	**11.20**	**0.000**	**.0779519**	**.111012**
readlevel15	**.0016424**	**.000595**	**2.76**	**0.006**	**.0004762**	**.0028086**
mathlevel15	**-.0017392**	**.0005698**	**-3.05**	**0.002**	**-.0028559**	**-.0006225**
_cons	**.5240844**	**.0360785**	**14.53**	**0.000**	**.4533718**	**.594797**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0303904**	**.0076686**	**.018533**	**.0498339**
geodistrict: Identity var(_cons)	**.0352498**	**.0019892**	**.0315589**	**.0393724**
var(Residual)	**.0283187**	**.0006082**	**.0271514**	**.0295362**

LR test vs. linear model: chi2(**2**) = **3451.15** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=5 data:
-> **mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban**
> readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1116.9937**
Iteration 1: log likelihood = **1116.9937**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1116.9937**

Wald chi2(**10**) = **1265.27**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall15	**-.3848942**	**.021107**	**-18.24**	**0.000**	**-.4262631**	**-.3435253**
mathall15	**-.0072878**	**.020836**	**-0.35**	**0.727**	**-.0481256**	**.03355**
primary	**.0520943**	**.0066999**	**7.78**	**0.000**	**.0389626**	**.0652259**
middle	**.0801195**	**.009879**	**8.11**	**0.000**	**.0607569**	**.099482**
high	**.0607856**	**.0080826**	**7.52**	**0.000**	**.0449441**	**.0766272**
lnage	**-.0100633**	**.0028098**	**-3.58**	**0.000**	**-.0155704**	**-.0045563**
lnstudents	**.0207903**	**.0035487**	**5.86**	**0.000**	**.0138351**	**.0277456**
urban	**.0944358**	**.0084142**	**11.22**	**0.000**	**.0779442**	**.1109274**
readlevel15	**.001789**	**.0005693**	**3.14**	**0.002**	**.0006732**	**.0029048**
mathlevel15	**-.0018171**	**.000536**	**-3.39**	**0.001**	**-.0028677**	**-.0007665**
_cons	**.525499**	**.0364464**	**14.42**	**0.000**	**.4540654**	**.5969326**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0308411**	**.0077598**	**.0188349**	**.0505005**
geodistrict: Identity var(_cons)	**.03501**	**.0019763**	**.0313432**	**.0391058**
var(Residual)	**.0282053**	**.0006057**	**.0270429**	**.0294178**

LR test vs. linear model: chi2(**2**) = **3478.93** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

29. mi est, dots post: mixed pocschoolprop readall15 mathall15 primary middle high lnage
> lnstudents urban readlevel15 mathlevel15 || state: || geodistrict: ,

Imputations (**100**):
.....10.....20.....30.....40.....50.....60.....70.....
> ..80.....90.....100 done

Multiple-imputation estimates Imputations = **100**
Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

DF adjustment: **Large sample**

Average RVI = **0.0832**
Largest FMI = **0.2320**
DF: min = **1,851.86**
avg = **2598199.69**
max = **3.33e+07**
Model F test: **Equal FMI**
F(**10**,**97518.0**) = **112.06**
Prob > F = **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall15	**-.3782772**	**.0241765**	**-15.65**	**0.000**	**-.4256932**	**-.3308612**
mathall15	**-.0126525**	**.0238094**	**-0.53**	**0.595**	**-.0593473**	**.0340423**
primary	**.0525736**	**.0067889**	**7.74**	**0.000**	**.0392676**	**.0658796**
middle	**.0804519**	**.0099882**	**8.05**	**0.000**	**.0608753**	**.1000285**
high	**.0613158**	**.0082159**	**7.46**	**0.000**	**.0452127**	**.0774189**
lnage	**-.010478**	**.0028487**	**-3.68**	**0.000**	**-.0160615**	**-.0048946**
lnstudents	**.0207939**	**.0037637**	**5.52**	**0.000**	**.0134158**	**.0281719**
urban	**.0938379**	**.0084611**	**11.09**	**0.000**	**.0772546**	**.1104213**
readlevel15	**.001663**	**.0006505**	**2.56**	**0.011**	**.0003874**	**.0029386**
mathlevel15	**-.0018564**	**.0006238**	**-2.98**	**0.003**	**-.0030795**	**-.0006332**
_cons	**.526057**	**.037158**	**14.16**	**0.000**	**.4532265**	**.5988874**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1750116**	**.0220624**	**.136698**	**.2240638**
geodistrict: Identity sd(_cons)	**.1874028**	**.0053183**	**.1772638**	**.1981219**
sd(Residual)	**.1681642**	**.0018368**	**.1646023**	**.1718031**

30. est store poc2

31. ereturn list

scalars:

e(small) = **0**
e(nrgroups) = **1**
e(ll_c) = **.**
e(k_rs) = **3**
e(N) = **5881**
e(df_c) = **.**
e(k_rc) = **0**
e(rc) = **0**
e(k) = **14**
e(k_res) = **0**
e(converged) = **1**
e(se_failed) = **0**
e(k_r) = **3**
e(ll) = **.**
e(mecmd) = **0**
e(chi2_c) = **.**
e(ic) = **1**
e(nostderr) = **0**
e(df_m) = **.**
e(p) = **.**
e(p_c) = **.**
e(k_f) = **11**
e(rank) = **.**

```
              e(chi2) =  .
         e(_dfnote_mi) =  0
         e(mcerror_mi) =  0
           e(N_min_mi) =  5881
           e(N_max_mi) =  5881
         e(cilevel_mi) =  95
           e(k_exp_mi) =  0
       e(reparm_rc_mi) =  .
      e(k_eq_model_mi) =  4
          e(caller_mi) =  15.1
          e(df_min_mi) =  1851.861026708528
          e(df_avg_mi) =  2598199.687231284
          e(df_max_mi) =  33329578.40240236
         e(fmi_max_mi) =  .2320425559554982
         e(rvi_avg_mi) =  .0831781578116205
               e(p_mi) =  4.4698663719e-233
            e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  .1115712609720382
               e(F_mi) =  112.0594438149719
            e(df_m_mi) =  10
            e(df_r_mi) =  97517.96520265492
            e(df_c_mi) =  .
               e(N_mi) =  5881
               e(M_mi) =  100
       e(esampvary_mi) =  0

macros:
                e(cmd) : "mixed"
         e(rstructure) : "independent"
         e(rstructlab) : "Independent"
              e(iccok) : "ok"
              e(redim) : "1 1"
          e(optmetric) : "matsqrt"
  e(datasignaturevars) : "pocschoolprop readall15 mathall15 primary middle high lnage
> ln.."
           e(vartypes) : "Identity Identity"
              e(title) : "Mixed-effects ML regression"
          e(stripe_se) : "pocschoolprop:readall15 pocschoolprop:mathall15 pocschoolpro
> p:.."
           e(chi2type) : "Wald"
          e(ml_method) : "d0"
             e(depvar) : "pocschoolprop"
                e(opt) : "moptimize"
           e(crittype) : "log likelihood"
             e(revars) : "_cons _cons"
              e(ivars) : "state geodistrict"
             e(method) : "ML"
          e(technique) : "nr"
            e(cmdline) : "mixed pocschoolprop readall15 mathall15 primary middle high
> ln.."
       e(names_vvl_mi) : "datasignature"
       e(names_vvs_mi) : "p chi2_c ll ll_c chi2"
       e(names_vvm_mi) : "b_sd se_sd V_sd"
               e(m_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
          e(m_est_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
              e(rc_mi) : "0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
> 0 .."
        e(dfadjust_mi) : "Large sample"
       e(modeltest_mi) : "Equal FMI"
           e(title_mi) : "Multiple-imputation estimates"
          e(prefix_mi) : "mi estimate"
             e(cmd_mi) : "mixed"
            e(ecmd_mi) : "mixed"
                e(mi) : "mi"
         e(cmdline_mi) : "mi estimate , dots post: mixed pocschoolprop readall15 matha
> ll.."
       e(_sortseed_mi) : "1990771273XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
    e(_sortseedcmd_mi) : "215307289XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa12
> 01.."
```

```
         e(properties) : "b V"

  matrices:
                   e(b) :  1 x 14
                   e(V) :  14 x 14
                e(b_sd) :  1 x 1
              e(noomit) :  1 x 11
            e(b_pclass) :  1 x 14
               e(g_min) :  1 x 2
               e(se_sd) :  1 x 1
               e(g_max) :  1 x 2
               e(g_avg) :  1 x 2
                 e(N_g) :  1 x 2
                e(V_sd) :  1 x 1
               e(re_mi) :  1 x 14
              e(fmi_mi) :  1 x 14
             e(pise_mi) :  1 x 14
              e(rvi_mi) :  1 x 14
               e(df_mi) :  1 x 14
                e(W_mi) :  14 x 14
                e(B_mi) :  14 x 14
                e(V_mi) :  14 x 14
                e(b_mi) :  1 x 14
              e(N_g_mi) :  1 x 2
            e(g_min_mi) :  1 x 2
            e(g_avg_mi) :  1 x 2
            e(g_max_mi) :  1 x 2

32. est save "model_estimates/3c_schpoc_acad_mi100_linear.ster", replace
  (note: file model_estimates/3c_schpoc_acad_mi100_linear.ster not found)
  file model_estimates/3c_schpoc_acad_mi100_linear.ster saved

33. outreg2 using "tables/3c_schpoc_acad_mi100_linear.rtf", replace word label onecol ad
  > dstat(Log-Likelihood, e(ll), chi-square test, r(chi2), F-test, e(p), Prob > F, r(p),
  >  R-squared, e(r2)) ///
  > alpha(.001, .01, .05) symbol(***, **, *) ///
  > ctitle("M2: Academic proficiency")
  (note: file tables/3c_schpoc_acad_mi100_linear.rtf not found)
  tables/3c_schpoc_acad_mi100_linear.rtf
  seeout

34.
35. * 3. fully specified
36. mi xeq 1 / 5: mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middl
  > e high lnage lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistri
  > ct: ,

  m=1 data:
  -> mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage
  > lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistrict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  1154.3205
  Iteration 1:   log likelihood =  1154.3205

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,881
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Wald chi2(**12**) = **1354.05**
Log likelihood = **1154.3205** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2189738**	**.0215658**	**-10.15**	**0.000**	**-.2612419**	**-.1767057**
readall15	**-.3619234**	**.0215466**	**-16.80**	**0.000**	**-.404154**	**-.3196928**
mathall15	**-.0127583**	**.0212011**	**-0.60**	**0.547**	**-.0543117**	**.0287952**
primary	**.0519878**	**.0066486**	**7.82**	**0.000**	**.0389569**	**.0650188**
middle	**.0775056**	**.0097749**	**7.93**	**0.000**	**.0583471**	**.0966641**
high	**.0599626**	**.0080433**	**7.45**	**0.000**	**.044198**	**.0757272**
lnage	**-.0102169**	**.0027924**	**-3.66**	**0.000**	**-.0156899**	**-.0047439**
lnstudents	**.0231013**	**.0034721**	**6.65**	**0.000**	**.0162962**	**.0299065**
urban	**.0953822**	**.008377**	**11.39**	**0.000**	**.0789635**	**.1118009**
pctpdfs	**.0965716**	**.0558884**	**1.73**	**0.084**	**-.0129676**	**.2061108**
readlevel15	**.0021679**	**.0006115**	**3.55**	**0.000**	**.0009693**	**.0033665**
mathlevel15	**-.0022345**	**.0005885**	**-3.80**	**0.000**	**-.0033879**	**-.0010812**
_cons	**.5345704**	**.0357876**	**14.94**	**0.000**	**.4644279**	**.6047128**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0299553**	**.0075708**	**.0182535**	**.049159**
geodistrict: Identity var(_cons)	**.0354047**	**.0019865**	**.0317176**	**.0395204**
var(Residual)	**.0277165**	**.0005957**	**.0265731**	**.028909**

LR test vs. linear model: chi2(**2**) = **3392.36** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=2 data:
-> **mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage**
> lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1169.1281**
Iteration 1: log likelihood = **1169.1281**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Wald chi2(**12**) = **1389.64**
Log likelihood = **1169.1281** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2152515	.0214972	-10.01	0.000	-.2573853	-.1731177
readall15	-.3635037	.0209792	-17.33	0.000	-.4046221	-.3223852
mathall15	-.0183972	.0207507	-0.89	0.375	-.0590678	.0222734
primary	.0528681	.0066402	7.96	0.000	.0398535	.0658827
middle	.0761614	.0097588	7.80	0.000	.0570345	.0952883
high	.0569025	.0080004	7.11	0.000	.0412219	.072583
lnage	-.0107989	.002781	-3.88	0.000	-.0162496	-.0053483
lnstudents	.0232573	.0034781	6.69	0.000	.0164403	.0300743
urban	.0959943	.008359	11.48	0.000	.079611	.1123776
pctpdfs	.0897473	.0557303	1.61	0.107	-.0194822	.1989767
readlevel15	.0015925	.0005748	2.77	0.006	.0004659	.002719
mathlevel15	-.0016573	.0005512	-3.01	0.003	-.0027376	-.000577
_cons	.5360109	.0356468	15.04	0.000	.4661445	.6058774

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0294441	.0074375	.0179467	.0483071
geodistrict: Identity var(_cons)	.0356027	.0019899	.0319086	.0397244
var(Residual)	.0275192	.0005915	.026384	.0287033

LR test vs. linear model: chi2(**2**) = **3422.33** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=3 data:
-> **mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage**
> lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1169.7305**
Iteration 1: log likelihood = **1169.7305**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1169.7305** Wald chi2(**12**) = **1391.94**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2156243	.0214961	-10.03	0.000	-.2577558	-.1734928
readall15	-.3632487	.0208476	-17.42	0.000	-.4041093	-.3223881
mathall15	-.0174385	.0205953	-0.85	0.397	-.0578045	.0229275
primary	.0536597	.0066266	8.10	0.000	.0406719	.0666475
middle	.078046	.0097715	7.99	0.000	.0588942	.0971979
high	.0567189	.0080074	7.08	0.000	.0410247	.072413
lnage	-.011485	.0027806	-4.13	0.000	-.0169348	-.0060353
lnstudents	.0240976	.0035038	6.88	0.000	.0172303	.0309649
urban	.0960384	.0083554	11.49	0.000	.0796621	.1124146
pctpdfs	.0912336	.0557461	1.64	0.102	-.0180268	.200494

readlevel15	**.0018029**	**.0005869**	**3.07**	**0.002**	**.0006525**	**.0029532**
mathlevel15	**-.0017265**	**.0005663**	**-3.05**	**0.002**	**-.0028365**	**-.0006165**
_cons	**.5323568**	**.0360039**	**14.79**	**0.000**	**.4617904**	**.6029231**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0302097**	**.0076173**	**.0184297**	**.0495195**
geodistrict: Identity var(_cons)	**.0352658**	**.0019744**	**.0316008**	**.0393559**
var(Residual)	**.0275613**	**.0005921**	**.0264249**	**.0287465**

LR test vs. linear model: chi2(**2**) = **3437.62** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=4 data:
-> **mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage**
> lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1156.6717**
Iteration 1: log likelihood = **1156.6717**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Log likelihood = **1156.6717** Wald chi2(**12**) = **1360.09**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2204633**	**.0215509**	**-10.23**	**0.000**	**-.2627022**	**-.1782244**
readall15	**-.366219**	**.0212145**	**-17.26**	**0.000**	**-.4077985**	**-.3246394**
mathall15	**-.007081**	**.0209488**	**-0.34**	**0.735**	**-.0481399**	**.033978**
primary	**.0522344**	**.0066551**	**7.85**	**0.000**	**.0391907**	**.0652782**
middle	**.0769047**	**.0097771**	**7.87**	**0.000**	**.0577419**	**.0960675**
high	**.0574025**	**.0080517**	**7.13**	**0.000**	**.0416214**	**.0731836**
lnage	**-.0116535**	**.0027879**	**-4.18**	**0.000**	**-.0171178**	**-.0061893**
lnstudents	**.0228763**	**.0034869**	**6.56**	**0.000**	**.0160422**	**.0297105**
urban	**.0967091**	**.0083721**	**11.55**	**0.000**	**.0803001**	**.1131182**
pctpdfs	**.1028796**	**.0558758**	**1.84**	**0.066**	**-.0066349**	**.2123941**
readlevel15	**.0018896**	**.0005895**	**3.21**	**0.001**	**.0007342**	**.0030451**
mathlevel15	**-.0019013**	**.0005642**	**-3.37**	**0.001**	**-.0030072**	**-.0007955**
_cons	**.5363941**	**.0357906**	**14.99**	**0.000**	**.4662459**	**.6065423**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0298667**	**.0075461**	**.0182022**	**.0490061**
geodistrict: Identity var(_cons)	**.0352807**	**.0019807**	**.0316046**	**.0393844**
var(Residual)	**.0277102**	**.0005955**	**.0265674**	**.0289023**

LR test vs. linear model: chi2(**2**) = **3395.02** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

m=5 data:
-> **mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage**
> lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1169.1464**
Iteration 1: log likelihood = **1169.1464**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

Wald chi2(**12**) = **1391.06**
Log likelihood = **1169.1464** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2191892**	**.0215053**	**-10.19**	**0.000**	**-.2613388**	**-.1770395**
readall15	**-.3659226**	**.0209864**	**-17.44**	**0.000**	**-.4070553**	**-.32479**
mathall15	**-.0135211**	**.0206447**	**-0.65**	**0.513**	**-.053984**	**.0269417**
primary	**.0521878**	**.0066338**	**7.87**	**0.000**	**.0391858**	**.0651898**
middle	**.0764891**	**.0097867**	**7.82**	**0.000**	**.0573076**	**.0956707**
high	**.0586795**	**.008005**	**7.33**	**0.000**	**.04299**	**.074369**
lnage	**-.0108136**	**.0027833**	**-3.89**	**0.000**	**-.0162687**	**-.0053584**
lnstudents	**.022769**	**.003521**	**6.47**	**0.000**	**.015868**	**.0296699**
urban	**.09665**	**.0083535**	**11.57**	**0.000**	**.0802775**	**.1130226**
pctpdfs	**.1021853**	**.0557646**	**1.83**	**0.067**	**-.0071112**	**.2114819**
readlevel15	**.00198**	**.0005639**	**3.51**	**0.000**	**.0008748**	**.0030851**
mathlevel15	**-.0019686**	**.0005309**	**-3.71**	**0.000**	**-.0030091**	**-.0009281**
_cons	**.5392535**	**.0361646**	**14.91**	**0.000**	**.4683722**	**.6101348**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0303209**	**.0076381**	**.0185063**	**.0496782**
geodistrict: Identity var(_cons)	**.0350643**	**.0019687**	**.0314104**	**.0391433**
var(Residual)	**.0275998**	**.000593**	**.0264617**	**.028787**

LR test vs. linear model: chi2(**2**) = **3420.06** Prob > chi2 = **0.0000**

Note: LR test is conservative and provided only for reference.

37. mi est, dots post: mixed pocschoolprop inquiry_full_log readall15 mathall15 primary
> middle high lnage lnstudents urban pctpdfs readlevel15 mathlevel15 || state: || geod
> istrict: ,

Imputations (**100**):
.....10.....20.....30.....40.....50.....60.....70.....
> ..80.....90.....100 done

Multiple-imputation estimates		Imputations	= **100**
Mixed-effects ML regression		Number of obs	= **5,881**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**136.8**	**1,080**
geodistrict	**1,507**	**1**	**3.9**	**256**

		Average RVI	= **0.0745**
		Largest FMI	= **0.2338**
DF adjustment:	**Large sample**	DF: min	= **1,824.05**
		avg	= **2210672.91**
		max	= **3.15e+07**
Model F test:	**Equal FMI**	F(**12,155455.1**)	= **104.28**
		Prob > F	= **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_log	**-.2194077**	**.0217569**	**-10.08**	**0.000**	**-.2620507**	**-.1767648**
readall15	**-.3589912**	**.0240631**	**-14.92**	**0.000**	**-.4061854**	**-.311797**
mathall15	**-.0192028**	**.0236225**	**-0.81**	**0.416**	**-.0655318**	**.0271261**
primary	**.0526685**	**.0067194**	**7.84**	**0.000**	**.0394987**	**.0658384**
middle	**.0768242**	**.0098894**	**7.77**	**0.000**	**.0574411**	**.0962072**
high	**.0592011**	**.0081338**	**7.28**	**0.000**	**.0432589**	**.0751432**
lnage	**-.0112201**	**.0028201**	**-3.98**	**0.000**	**-.0167474**	**-.0056928**
lnstudents	**.0227443**	**.0037246**	**6.11**	**0.000**	**.0154429**	**.0300458**
urban	**.0961025**	**.0083981**	**11.44**	**0.000**	**.0796425**	**.1125624**
pctpdfs	**.0962515**	**.0563917**	**1.71**	**0.088**	**-.0142747**	**.2067776**
readlevel15	**.0018424**	**.0006442**	**2.86**	**0.004**	**.0005792**	**.0031056**
mathlevel15	**-.0020005**	**.0006173**	**-3.24**	**0.001**	**-.003211**	**-.0007901**
_cons	**.5399965**	**.036834**	**14.66**	**0.000**	**.4678012**	**.6121918**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1734541**	**.0218942**	**.1354384**	**.2221401**
geodistrict: Identity sd(_cons)	**.1874821**	**.0052917**	**.1773922**	**.198146**
sd(Residual)	**.166367**	**.0018162**	**.1628452**	**.169965**

38. est store poc3

```
39. ereturn list

  scalars:
              e(small) =  0
           e(nrgroups) =  1
               e(ll_c) =  .
               e(k_rs) =  3
                  e(N) =  5881
               e(df_c) =  .
               e(k_rc) =  0
                 e(rc) =  0
                  e(k) =  16
              e(k_res) =  0
          e(converged) =  1
          e(se_failed) =  0
                e(k_r) =  3
                 e(ll) =  .
              e(mecmd) =  0
             e(chi2_c) =  .
                 e(ic) =  1
           e(nostderr) =  0
               e(df_m) =  .
                  e(p) =  .
                e(p_c) =  .
                e(k_f) =  13
               e(rank) =  .
               e(chi2) =  .
         e(_dfnote_mi) =  0
         e(mcerror_mi) =  0
           e(N_min_mi) =  5881
           e(N_max_mi) =  5881
         e(cilevel_mi) =  95
           e(k_exp_mi) =  0
       e(reparm_rc_mi) =  .
      e(k_eq_model_mi) =  4
          e(caller_mi) =  15.1
          e(df_min_mi) =  1824.052324785082
          e(df_avg_mi) =  2210672.910092183
          e(df_max_mi) =  31473874.4275433
         e(fmi_max_mi) =  .2338090747348324
         e(rvi_avg_mi) =  .0744651474426766
               e(p_mi) =  1.7979653718e-259
           e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  .095456653504947
               e(F_mi) =  104.2770403294791
            e(df_m_mi) =  12
            e(df_r_mi) =  155455.1038105468
            e(df_c_mi) =  .
               e(N_mi) =  5881
               e(M_mi) =  100
       e(esampvary_mi) =  0

  macros:
                e(cmd) : "mixed"
         e(rstructure) : "independent"
         e(rstructlab) : "Independent"
              e(iccok) : "ok"
              e(redim) : "1 1"
          e(optmetric) : "matsqrt"
  e(datasignaturevars) : "pocschoolprop inquiry_full_log readall15 mathall15 primary m
> id.."
           e(vartypes) : "Identity Identity"
              e(title) : "Mixed-effects ML regression"
          e(stripe_se) : "pocschoolprop:inquiry_full_log pocschoolprop:readall15 pocsc
> ho.."
           e(chi2type) : "Wald"
          e(ml_method) : "d0"
             e(depvar) : "pocschoolprop"
                e(opt) : "moptimize"
           e(crittype) : "log likelihood"
             e(revars) : "_cons _cons"
              e(ivars) : "state geodistrict"
```

```
              e(method) : "ML"
           e(technique) : "nr"
             e(cmdline) : "mixed pocschoolprop inquiry_full_log readall15 mathall15 pri
> ma.."
       e(names_vvl_mi) : "datasignature"
       e(names_vvs_mi) : "p chi2_c ll ll_c chi2"
       e(names_vvm_mi) : "b_sd se_sd V_sd"
              e(m_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
          e(m_est_mi) : "1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
> 24.."
             e(rc_mi) : "0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
> 0 .."
        e(dfadjust_mi) : "Large sample"
       e(modeltest_mi) : "Equal FMI"
           e(title_mi) : "Multiple-imputation estimates"
          e(prefix_mi) : "mi estimate"
             e(cmd_mi) : "mixed"
            e(ecmd_mi) : "mixed"
                 e(mi) : "mi"
         e(cmdline_mi) : "mi estimate , dots post: mixed pocschoolprop inquiry_full_lo
> g .."
       e(_sortseed_mi) : "23363929XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa120
> 1b.."
    e(_sortseedcmd_mi) : "1653209129XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
         e(properties) : "b V"

  matrices:
                  e(b) :  1 x 16
                  e(V) :  16 x 16
               e(b_sd) :  1 x 1
             e(noomit) :  1 x 13
            e(b_pclass) :  1 x 16
               e(g_min) :  1 x 2
               e(se_sd) :  1 x 1
               e(g_max) :  1 x 2
               e(g_avg) :  1 x 2
                 e(N_g) :  1 x 2
                e(V_sd) :  1 x 1
               e(re_mi) :  1 x 16
              e(fmi_mi) :  1 x 16
             e(pise_mi) :  1 x 16
              e(rvi_mi) :  1 x 16
               e(df_mi) :  1 x 16
                e(W_mi) :  16 x 16
                e(B_mi) :  16 x 16
                e(V_mi) :  16 x 16
                e(b_mi) :  1 x 16
             e(N_g_mi) :  1 x 2
            e(g_min_mi) :  1 x 2
            e(g_avg_mi) :  1 x 2
            e(g_max_mi) :  1 x 2

40. est save "model_estimates/3d_schpoc_full_mi100_linear.ster", replace
  (note: file model_estimates/3d_schpoc_full_mi100_linear.ster not found)
  file model_estimates/3d_schpoc_full_mi100_linear.ster saved

41. outreg2 using "tables/3d_schpoc_full_mi100_linear.rtf", replace word label onecol ad
  > dstat(Log-Likelihood, e(ll), chi-square test, r(chi2), F-test, e(p), Prob > F, r(p),
  >  R-squared, e(r2)) ///
  > alpha(.001, .01, .05) symbol(***, **, *) ///
  > ctitle("M3: Fully specified")
  (note: file tables/3d_schpoc_full_mi100_linear.rtf not found)
  tables/3d_schpoc_full_mi100_linear.rtf
  seeout
```

```
42.
43. log close
       name:  <unnamed>
        log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_3_
  > schpoc_mi100_linear_100919.smcl
      log type:  smcl
     closed on:   9 Oct 2019, 23:37:04
-------------------------------------------------------------------------------
```