Statistics/Data Analysis

```
      name:  <unnamed>
       log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_3_
> schpoc_mi100_linear_101019.smcl
  log type:  smcl
 opened on:  18 Oct 2019, 13:55:53

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 =  637.60313
  Iteration 1:   log likelihood =  637.60313

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

```
                                                Wald chi2(6)      =     234.07
  Log likelihood =  637.60313                   Prob > chi2       =     0.0000
```

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0448028	.0072437	6.19	0.000	.0306054	.0590003
middle	.0703974	.0106574	6.61	0.000	.0495093	.0912854
high	.0565576	.0086033	6.57	0.000	.0396954	.0734198
lnage	-.0159215	.0030605	-5.20	0.000	-.02192	-.0099231
lnstudents	.0048071	.0033651	1.43	0.153	-.0017885	.0114026
urban	.1073286	.0091897	11.68	0.000	.0893171	.12534
_cons	.4319549	.0352738	12.25	0.000	.3628195	.5010902

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0304414	.0079415	.0182559	.0507604
geodistrict: Identity var(_cons)	.0400336	.0022567	.0358462	.0447102
var(Residual)	.0332372	.0007167	.0318618	.034672

```
  LR test vs. linear model: chi2(2) = 2992.36                   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 = **637.60313**
Iteration 1: log likelihood = **637.60313**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **637.60313**

Wald chi2(**6**) = **234.07**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	**.0448028**	**.0072437**	**6.19**	**0.000**	**.0306054**	**.0590003**
middle	**.0703974**	**.0106574**	**6.61**	**0.000**	**.0495093**	**.0912854**
high	**.0565576**	**.0086033**	**6.57**	**0.000**	**.0396954**	**.0734198**
lnage	**-.0159215**	**.0030605**	**-5.20**	**0.000**	**-.02192**	**-.0099231**
lnstudents	**.0048071**	**.0033651**	**1.43**	**0.153**	**-.0017885**	**.0114026**
urban	**.1073286**	**.0091897**	**11.68**	**0.000**	**.0893171**	**.12534**
_cons	**.4319549**	**.0352738**	**12.25**	**0.000**	**.3628195**	**.5010902**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0304414**	**.0079415**	**.0182559**	**.0507604**
geodistrict: Identity var(_cons)	**.0400336**	**.0022567**	**.0358462**	**.0447102**
var(Residual)	**.0332372**	**.0007167**	**.0318618**	**.034672**

LR test vs. linear model: chi2(**2**) = **2992.36** 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 = **637.60313**
Iteration 1: log likelihood = **637.60313**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **637.60313**

Wald chi2(**6**) = **234.07**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	**.0448028**	**.0072437**	**6.19**	**0.000**	**.0306054**	**.0590003**
middle	**.0703974**	**.0106574**	**6.61**	**0.000**	**.0495093**	**.0912854**
high	**.0565576**	**.0086033**	**6.57**	**0.000**	**.0396954**	**.0734198**
lnage	**-.0159215**	**.0030605**	**-5.20**	**0.000**	**-.02192**	**-.0099231**
lnstudents	**.0048071**	**.0033651**	**1.43**	**0.153**	**-.0017885**	**.0114026**
urban	**.1073286**	**.0091897**	**11.68**	**0.000**	**.0893171**	**.12534**
_cons	**.4319549**	**.0352738**	**12.25**	**0.000**	**.3628195**	**.5010902**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0304414**	**.0079415**	**.0182559**	**.0507604**
geodistrict: Identity var(_cons)	**.0400336**	**.0022567**	**.0358462**	**.0447102**
var(Residual)	**.0332372**	**.0007167**	**.0318618**	**.034672**

LR test vs. linear model: chi2(**2**) = **2992.36** 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 = **637.60313**
Iteration 1: log likelihood = **637.60313**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **637.60313**

Wald chi2(**6**) = **234.07**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0448028	.0072437	6.19	0.000	.0306054	.0590003
middle	.0703974	.0106574	6.61	0.000	.0495093	.0912854
high	.0565576	.0086033	6.57	0.000	.0396954	.0734198
lnage	-.0159215	.0030605	-5.20	0.000	-.02192	-.0099231
lnstudents	.0048071	.0033651	1.43	0.153	-.0017885	.0114026
urban	.1073286	.0091897	11.68	0.000	.0893171	.12534
_cons	.4319549	.0352738	12.25	0.000	.3628195	.5010902

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0304414	.0079415	.0182559	.0507604
geodistrict: Identity var(_cons)	.0400336	.0022567	.0358462	.0447102
var(Residual)	.0332372	.0007167	.0318618	.034672

LR test vs. linear model: chi2(**2**) = **2992.36** 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 = **637.60313**
Iteration 1: log likelihood = **637.60313**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	43	2	134.5	1,056
geodistrict	1,492	1	3.9	251

Log likelihood = **637.60313** Wald chi2(**6**) = **234.07**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
primary	.0448028	.0072437	6.19	0.000	.0306054	.0590003
middle	.0703974	.0106574	6.61	0.000	.0495093	.0912854
high	.0565576	.0086033	6.57	0.000	.0396954	.0734198
lnage	-.0159215	.0030605	-5.20	0.000	-.02192	-.0099231
lnstudents	.0048071	.0033651	1.43	0.153	-.0017885	.0114026
urban	.1073286	.0091897	11.68	0.000	.0893171	.12534
_cons	.4319549	.0352738	12.25	0.000	.3628195	.5010902

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0304414**	**.0079415**	**.0182559**	**.0507604**
geodistrict: Identity var(_cons)	**.0400336**	**.0022567**	**.0358462**	**.0447102**
var(Residual)	**.0332372**	**.0007167**	**.0318618**	**.034672**

LR test vs. linear model: chi2(**2**) = **2992.36** 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 = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Average RVI = **0.0000**
Largest FMI = **0.0000**
DF adjustment: **Large sample** DF: min = **1.13e+61**
avg = **1.13e+61**
max = **.**
Model F test: **Equal FMI** F(6, .) = **39.01**
Prob > F = **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**.0448028**	**.0072437**	**6.19**	**0.000**	**.0306054**	**.0590003**
middle	**.0703974**	**.0106574**	**6.61**	**0.000**	**.0495093**	**.0912854**
high	**.0565576**	**.0086033**	**6.57**	**0.000**	**.0396954**	**.0734198**
lnage	**-.0159215**	**.0030605**	**-5.20**	**0.000**	**-.02192**	**-.0099231**
lnstudents	**.0048071**	**.0033651**	**1.43**	**0.153**	**-.0017885**	**.0114026**
urban	**.1073286**	**.0091897**	**11.68**	**0.000**	**.0893171**	**.12534**
_cons	**.4319549**	**.0352738**	**12.25**	**0.000**	**.3628195**	**.5010902**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1744746**	**.0227584**	**.1351144**	**.2253007**
geodistrict: Identity sd(_cons)	**.200084**	**.0056393**	**.1893309**	**.2114478**
sd(Residual)	**.1823108**	**.0019655**	**.1784989**	**.1862042**

```
14. est store poc0

15. ereturn list

  scalars:
                  e(small) =  0
               e(nrgroups) =  1
                   e(ll_c) =  .
                   e(k_rs) =  3
                      e(N) =  5784
                   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) =  5784
              e(N_max_mi) =  5784
            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) =  1.13276562164e+61
             e(df_avg_mi) =  1.13276562164e+61
             e(df_max_mi) =  .
            e(fmi_max_mi) =  2.95629362756e-30
            e(rvi_avg_mi) =  2.95779132619e-31
                  e(p_mi) =  1.03425418250e-47
               e(ufmi_mi) =  0
           e(rvi_avg_F_mi) =  0
                  e(F_mi) =  39.01224505769045
               e(df_m_mi) =  6
               e(df_r_mi) =  .
               e(df_c_mi) =  .
                  e(N_mi) =  5784
                  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) : "5784:9:2108754813:3401611120"
               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 .."
        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) : "2145085961XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
    e(_sortseedcmd_mi) : "1721409609XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
         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
  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")
  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 =  715.82237
  Iteration 1:   log likelihood =  715.82237

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **715.82237**

Wald chi2(**8**) = **396.83**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296436**	**.007742**	**.0177674**	**.0494584**
geodistrict: Identity var(_cons)	**.0396891**	**.0022298**	**.0355509**	**.0443091**
var(Residual)	**.0322287**	**.0006957**	**.0308936**	**.0336215**

LR test vs. linear model: chi2(**2**) = **2943.80** 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 =  715.82237
  Iteration 1:   log likelihood =  715.82237
```

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **715.82237**

Wald chi2(**8**) = **396.83**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296436**	**.007742**	**.0177674**	**.0494584**
geodistrict: Identity var(_cons)	**.0396891**	**.0022298**	**.0355509**	**.0443091**
var(Residual)	**.0322287**	**.0006957**	**.0308936**	**.0336215**

LR test vs. linear model: chi2(**2**) = **2943.80** 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 = **715.82237**
Iteration 1: log likelihood = **715.82237**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **715.82237**

Wald chi2(**8**) = **396.83**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296436**	**.007742**	**.0177674**	**.0494584**
geodistrict: Identity var(_cons)	**.0396891**	**.0022298**	**.0355509**	**.0443091**
var(Residual)	**.0322287**	**.0006957**	**.0308936**	**.0336215**

LR test vs. linear model: chi2(**2**) = **2943.80** 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 = **715.82237**
Iteration 1: log likelihood = **715.82237**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Wald chi2(**8**) = **396.83**
Log likelihood = **715.82237** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296436**	**.007742**	**.0177674**	**.0494584**
geodistrict: Identity var(_cons)	**.0396891**	**.0022298**	**.0355509**	**.0443091**
var(Residual)	**.0322287**	**.0006957**	**.0308936**	**.0336215**

LR test vs. linear model: chi2(**2**) = **2943.80** 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 = **715.82237**
Iteration 1: log likelihood = **715.82237**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **715.82237** Wald chi2(**8**) = **396.83**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296436**	**.007742**	**.0177674**	**.0494584**
geodistrict: Identity var(_cons)	**.0396891**	**.0022298**	**.0355509**	**.0443091**
var(Residual)	**.0322287**	**.0006957**	**.0308936**	**.0336215**

LR test vs. linear model: chi2(**2**) = **2943.80** 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     =      5,784
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

```
                                                  Average RVI       =     0.0000
                                                  Largest FMI       =     0.0000
  DF adjustment:   Large sample                   DF:     min       =   1.14e+61
                                                          avg       =   1.68e+64
                                                          max       =          .
  Model F test:       Equal FMI                   F(   8, 1.7e+67)  =      49.60
                                                  Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_log	**-.2923968**	**.0232802**	**-12.56**	**0.000**	**-.3380253**	**-.2467684**
primary	**.0455286**	**.0071399**	**6.38**	**0.000**	**.0315347**	**.0595226**
middle	**.0662506**	**.0105089**	**6.30**	**0.000**	**.0456535**	**.0868476**
high	**.054149**	**.0084812**	**6.38**	**0.000**	**.037526**	**.0707719**
lnage	**-.0166663**	**.0030173**	**-5.52**	**0.000**	**-.0225801**	**-.0107525**
lnstudents	**.0080466**	**.003329**	**2.42**	**0.016**	**.001522**	**.0145713**
urban	**.1095791**	**.009079**	**12.07**	**0.000**	**.0917847**	**.1273736**
pctpdfs	**.1041683**	**.0601487**	**1.73**	**0.083**	**-.0137209**	**.2220575**
_cons	**.456673**	**.0348726**	**13.10**	**0.000**	**.388324**	**.525022**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1721733**	**.0224832**	**.1332943**	**.2223924**
geodistrict: Identity sd(_cons)	**.1992213**	**.0055962**	**.1885494**	**.2104973**
sd(Residual)	**.1795236**	**.0019376**	**.1757659**	**.1833616**

```
22. est store poc1

23. ereturn list

  scalars:
              e(small) =  0
           e(nrgroups) =  1
               e(ll_c) =  .
               e(k_rs) =  3
                  e(N) =  5784
               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) =  5784
          e(N_max_mi) =  5784
        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) =  1.13782363836e+61
          e(df_avg_mi) =  1.67881570633e+64
          e(df_max_mi) =  .
        e(fmi_max_mi) =  2.94971543876e-30
        e(rvi_avg_mi) =  2.50486594931e-31
              e(p_mi) =  8.92340611380e-81
          e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  6.82428213032e-33
              e(F_mi) =  49.60379956294027
          e(df_m_mi) =  8
          e(df_r_mi) =  1.68351151215e+67
          e(df_c_mi) =  .
             e(N_mi) =  5784
             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) : "5784:11:3904916962:2801224615"
              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) : "1617794233XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
     e(_sortseedcmd_mi) : "541931257XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa12
> 01.."
          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
  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")
  tables/3b_schpoc_ibl_mi100_linear.rtf
  seeout

26.
27. * 2. academic performance
28. mi xeq 1 / 5: mixed pocschoolprop readall14 mathall14 primary middle high lnage lnst
  > udents urban readlevel14 mathlevel14 || state: || geodistrict: ,

  m=1 data:
  -> mixed pocschoolprop readall14 mathall14 primary middle high lnage lnstudents urban
  > readlevel14 mathlevel14 || state: || geodistrict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  1075.8709
  Iteration 1:   log likelihood =  1075.8709

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1075.8709**

Wald chi2(**10**) = **1213.97**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall14	**-.325358**	**.0197154**	**-16.50**	**0.000**	**-.3639994**	**-.2867165**
mathall14	**-.0699974**	**.0196804**	**-3.56**	**0.000**	**-.1085702**	**-.0314246**
primary	**.052058**	**.0067476**	**7.72**	**0.000**	**.038833**	**.065283**
middle	**.0769879**	**.0099851**	**7.71**	**0.000**	**.0574174**	**.0965583**
high	**.0640949**	**.008105**	**7.91**	**0.000**	**.0482093**	**.0799804**
lnage	**-.0094847**	**.0028433**	**-3.34**	**0.001**	**-.0150575**	**-.0039118**
lnstudents	**.0220042**	**.0036249**	**6.07**	**0.000**	**.0148996**	**.0291088**
urban	**.0996266**	**.008536**	**11.67**	**0.000**	**.0828963**	**.116357**
readlevel14	**.0002455**	**.000645**	**0.38**	**0.703**	**-.0010186**	**.0015096**
mathlevel14	**.0000557**	**.0006254**	**0.09**	**0.929**	**-.0011701**	**.0012814**
_cons	**.5102221**	**.0363711**	**14.03**	**0.000**	**.438936**	**.5815082**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0296489**	**.0075519**	**.0179969**	**.0488447**
geodistrict: Identity var(_cons)	**.0355738**	**.0020151**	**.0318356**	**.039751**
var(Residual)	**.0283416**	**.0006144**	**.0271626**	**.0295718**

LR test vs. linear model: chi2(**2**) = **3290.90** Prob > chi2 = **0.0000**

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

m=2 data:
-> **mixed pocschoolprop readall14 mathall14 primary middle high lnage lnstudents urban**
> readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1065.4223**
Iteration 1: log likelihood = **1065.4223**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1065.4223**

Wald chi2(**10**) = **1188.65**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall14	**-.3455058**	**.0200749**	**-17.21**	**0.000**	**-.3848519**	**-.3061598**
mathall14	**-.0396784**	**.0199176**	**-1.99**	**0.046**	**-.0787162**	**-.0006406**
primary	**.0523127**	**.0067659**	**7.73**	**0.000**	**.0390517**	**.0655737**
middle	**.079734**	**.0100033**	**7.97**	**0.000**	**.0601279**	**.0993401**
high	**.0657684**	**.0081193**	**8.10**	**0.000**	**.0498549**	**.081682**
lnage	**-.0087571**	**.0028532**	**-3.07**	**0.002**	**-.0143493**	**-.0031648**
lnstudents	**.0237288**	**.0036226**	**6.55**	**0.000**	**.0166287**	**.0308289**
urban	**.0988615**	**.0085545**	**11.56**	**0.000**	**.082095**	**.115628**
readlevel14	**.0006403**	**.0006289**	**1.02**	**0.309**	**-.0005924**	**.001873**
mathlevel14	**-.0001472**	**.0006137**	**-0.24**	**0.810**	**-.0013501**	**.0010557**
_cons	**.4947423**	**.0360984**	**13.71**	**0.000**	**.4239908**	**.5654938**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0288868**	**.0073798**	**.0175081**	**.0476606**
geodistrict: Identity var(_cons)	**.0357483**	**.0020239**	**.0319938**	**.0399434**
var(Residual)	**.028443**	**.0006166**	**.0272598**	**.0296776**

LR test vs. linear model: chi2(**2**) = **3278.41** Prob > chi2 = **0.0000**

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

m=3 data:
-> **mixed pocschoolprop readall14 mathall14 primary middle high lnage lnstudents urban**
> readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1076.1079**
Iteration 1: log likelihood = **1076.1079**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1076.1079**

Wald chi2(**10**) = **1215.53**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall14	**-.3401622**	**.0200117**	**-17.00**	**0.000**	**-.3793845**	**-.3009399**
mathall14	**-.05275**	**.0199704**	**-2.64**	**0.008**	**-.0918913**	**-.0136087**
primary	**.0532317**	**.006759**	**7.88**	**0.000**	**.0399842**	**.0664791**
middle	**.079068**	**.0100086**	**7.90**	**0.000**	**.0594514**	**.0986845**
high	**.0666379**	**.008117**	**8.21**	**0.000**	**.0507289**	**.0825468**
lnage	**-.0096859**	**.0028435**	**-3.41**	**0.001**	**-.0152591**	**-.0041127**
lnstudents	**.0256166**	**.003671**	**6.98**	**0.000**	**.0184215**	**.0328116**
urban	**.098356**	**.008535**	**11.52**	**0.000**	**.0816278**	**.1150842**
readlevel14	**.0015404**	**.0006673**	**2.31**	**0.021**	**.0002326**	**.0028482**
mathlevel14	**-.0008369**	**.0006553**	**-1.28**	**0.202**	**-.0021214**	**.0004475**
_cons	**.4878892**	**.0363914**	**13.41**	**0.000**	**.4165634**	**.559215**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0292656**	**.0074614**	**.0177558**	**.0482363**
geodistrict: Identity var(_cons)	**.0352783**	**.0020013**	**.0315661**	**.0394271**
var(Residual)	**.0283904**	**.0006152**	**.0272099**	**.0296221**

LR test vs. linear model: chi2(**2**) = **3285.38** Prob > chi2 = **0.0000**

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

m=4 data:
-> **mixed pocschoolprop readall14 mathall14 primary middle high lnage lnstudents urban**
> readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1066.1008**
Iteration 1: log likelihood = **1066.1008**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1066.1008**

Wald chi2(**10**) = **1189.75**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall14	**-.3257878**	**.0200423**	**-16.26**	**0.000**	**-.36507**	**-.2865056**
mathall14	**-.0628867**	**.0202083**	**-3.11**	**0.002**	**-.1024942**	**-.0232791**
primary	**.0510586**	**.0067731**	**7.54**	**0.000**	**.0377836**	**.0643335**
middle	**.0756875**	**.010009**	**7.56**	**0.000**	**.0560702**	**.0953049**
high	**.0676257**	**.0081253**	**8.32**	**0.000**	**.0517004**	**.0835511**
lnage	**-.0105829**	**.0028442**	**-3.72**	**0.000**	**-.0161574**	**-.0050084**
lnstudents	**.020371**	**.0036483**	**5.58**	**0.000**	**.0132206**	**.0275215**
urban	**.097209**	**.0085566**	**11.36**	**0.000**	**.0804383**	**.1139796**
readlevel14	**.0005171**	**.0006483**	**0.80**	**0.425**	**-.0007536**	**.0017878**
mathlevel14	**-.000517**	**.0006208**	**-0.83**	**0.405**	**-.0017338**	**.0006998**
_cons	**.521238**	**.0363859**	**14.33**	**0.000**	**.4499229**	**.592553**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0291697**	**.0074653**	**.0176639**	**.04817**
geodistrict: Identity var(_cons)	**.0359091**	**.0020285**	**.0321455**	**.0401134**
var(Residual)	**.0284064**	**.0006157**	**.0272249**	**.0296392**

LR test vs. linear model: chi2(**2**) = **3279.04** Prob > chi2 = **0.0000**

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

m=5 data:
-> **mixed pocschoolprop readall14 mathall14 primary middle high lnage lnstudents urban**
> readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1080.7739**
Iteration 1: log likelihood = **1080.7739**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1080.7739**

Wald chi2(**10**) = **1225.34**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
readall14	**-.3392508**	**.0197752**	**-17.16**	**0.000**	**-.3780095**	**-.3004922**
mathall14	**-.0528798**	**.0196823**	**-2.69**	**0.007**	**-.0914564**	**-.0143032**
primary	**.0518586**	**.0067423**	**7.69**	**0.000**	**.038644**	**.0650731**
middle	**.0786517**	**.0099664**	**7.89**	**0.000**	**.059118**	**.0981854**
high	**.0633858**	**.00811**	**7.82**	**0.000**	**.0474905**	**.0792811**
lnage	**-.0085865**	**.0028438**	**-3.02**	**0.003**	**-.0141603**	**-.0030127**
lnstudents	**.024187**	**.0036152**	**6.69**	**0.000**	**.0171014**	**.0312727**
urban	**.0988388**	**.0085327**	**11.58**	**0.000**	**.082115**	**.1155626**
readlevel14	**.0012439**	**.0006298**	**1.98**	**0.048**	**9.55e-06**	**.0024782**
mathlevel14	**-.0004955**	**.0006126**	**-0.81**	**0.419**	**-.0016962**	**.0007052**
_cons	**.4922904**	**.0363737**	**13.53**	**0.000**	**.4209992**	**.5635816**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0297492**	**.0075734**	**.0180626**	**.0489969**
geodistrict: Identity var(_cons)	**.0356713**	**.0020155**	**.0319318**	**.0398486**
var(Residual)	**.0282666**	**.0006126**	**.027091**	**.0294932**

LR test vs. linear model: chi2(**2**) = **3312.57** Prob > chi2 = **0.0000**

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

29. mi est, dots post: mixed pocschoolprop readall14 mathall14 primary middle high lnage
> lnstudents urban readlevel14 mathlevel14 || 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 = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

DF adjustment: **Large sample**

Average RVI = **0.0999**
Largest FMI = **0.3019**
DF: min = **1,095.76**
avg = **1194684.38**
max = **1.37e+07**
Model F test: **Equal FMI**
F(**10**,**68192.6**) = **106.15**
Prob > F = **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	**-.3349772**	**.0229016**	**-14.63**	**0.000**	**-.3798942**	**-.2900602**
mathall14	**-.0560956**	**.0231562**	**-2.42**	**0.016**	**-.1015158**	**-.0106755**
primary	**.0517785**	**.0068219**	**7.59**	**0.000**	**.0384077**	**.0651493**
middle	**.078347**	**.0100987**	**7.76**	**0.000**	**.0585538**	**.0981401**
high	**.065874**	**.0082402**	**7.99**	**0.000**	**.0497234**	**.0820247**
lnage	**-.009074**	**.0028892**	**-3.14**	**0.002**	**-.0147367**	**-.0034113**
lnstudents	**.0222223**	**.0038986**	**5.70**	**0.000**	**.0145797**	**.029865**
urban	**.0990393**	**.0085875**	**11.53**	**0.000**	**.0822081**	**.1158706**
readlevel14	**.0008321**	**.0007683**	**1.08**	**0.279**	**-.0006754**	**.0023396**
mathlevel14	**-.0005298**	**.0007397**	**-0.72**	**0.474**	**-.001981**	**.0009215**
_cons	**.5067108**	**.0373961**	**13.55**	**0.000**	**.4334126**	**.5800089**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1708184**	**.0218137**	**.1329949**	**.2193988**
geodistrict: Identity sd(_cons)	**.1887488**	**.0053659**	**.1785195**	**.1995643**
sd(Residual)	**.1684303**	**.0018434**	**.1648558**	**.1720823**

30. est store poc2

31. ereturn list

scalars:

```
            e(small) =  0
         e(nrgroups) =  1
             e(ll_c) =  .
             e(k_rs) =  3
                e(N) =  5784
             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) =  5784
           e(N_max_mi) =  5784
         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) =  1095.759548854599
          e(df_avg_mi) =  1194684.380508658
          e(df_max_mi) =  13692154.20405542
         e(fmi_max_mi) =  .3018530290880527
         e(rvi_avg_mi) =  .0998657920217146
               e(p_mi) =  5.9681332950e-220
            e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  .1364095080426757
               e(F_mi) =  106.1471271578744
            e(df_m_mi) =  10
            e(df_r_mi) =  68192.61620022947
            e(df_c_mi) =  .
               e(N_mi) =  5784
               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 readall14 mathall14 primary middle high lnage
> ln.."
           e(vartypes) : "Identity Identity"
              e(title) : "Mixed-effects ML regression"
          e(stripe_se) : "pocschoolprop:readall14 pocschoolprop:mathall14 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 readall14 mathall14 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 readall14 matha
> ll.."
       e(_sortseed_mi) : "1993677113XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
    e(_sortseedcmd_mi) : "888134521XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa12
> 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
  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")
  tables/3c_schpoc_acad_mi100_linear.rtf
  seeout

34.
35. * 3. fully specified
36. mi xeq 1 / 5: mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middl
  > e high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistri
  > ct: ,

  m=1 data:
  -> mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middle high lnage
  > lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistrict: ,

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  1123.3618
  Iteration 1:   log likelihood =  1123.3618

  Computing standard errors:

  Mixed-effects ML regression                     Number of obs     =      5,784

  ------------------------------------------------------------------------------
                  |     No. of       Observations per Group
   Group Variable |     Groups    Minimum    Average    Maximum
  ----------------+-------------------------------------------------------------
            state |         43          2      134.5      1,056
      geodistrict |      1,492          1        3.9        251
  ------------------------------------------------------------------------------

                                                  Wald chi2(12)     =    1328.03
  Log likelihood =  1123.3618                     Prob > chi2       =     0.0000
```

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2119369	.0218645	-9.69	0.000	-.2547907	-.1690832
readall14	-.3044778	.0196586	-15.49	0.000	-.3430078	-.2659477
mathall14	-.076738	.0195149	-3.93	0.000	-.1149864	-.0384895
primary	.052451	.0066865	7.84	0.000	.0393457	.0655562
middle	.0733779	.0098999	7.41	0.000	.0539744	.0927814
high	.0620732	.0080335	7.73	0.000	.046328	.0778185
lnage	-.0103324	.002819	-3.67	0.000	-.0158577	-.0048072
lnstudents	.0233944	.0035963	6.51	0.000	.0163458	.0304431
urban	.1013552	.0084778	11.96	0.000	.084739	.1179714
pctpdfs	.1090817	.0559757	1.95	0.051	-.0006286	.218792
readlevel14	.0003168	.0006391	0.50	0.620	-.0009358	.0015694
mathlevel14	-.0000759	.0006198	-0.12	0.903	-.0012907	.0011389
_cons	.5266482	.036099	14.59	0.000	.4558954	.597401

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	.0291004	.0074272	.0176461	.0479899
geodistrict: Identity var(_cons)	.0355941	.0020072	.0318697	.0397539
var(Residual)	.0277824	.0006026	.026626	.028989

LR test vs. linear model: chi2(**2**) = **3228.82** Prob > chi2 = **0.0000**

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

m=2 data:
-> **mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middle high lnage**
> lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1114.3636**
Iteration 1: log likelihood = **1114.3636**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1114.3636** Wald chi2(**12**) = **1305.76**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2161701	.0218877	-9.88	0.000	-.2590691	-.1732711
readall14	-.3239216	.0200049	-16.19	0.000	-.3631304	-.2847128
mathall14	-.0477472	.0197476	-2.42	0.016	-.0864518	-.0090426
primary	.0526908	.0067025	7.86	0.000	.0395542	.0658275
middle	.0760213	.0099146	7.67	0.000	.056589	.0954536
high	.0637094	.0080451	7.92	0.000	.0479412	.0794776
lnage	-.0096102	.002828	-3.40	0.001	-.015153	-.0040675
lnstudents	.0251265	.0035928	6.99	0.000	.0180846	.0321683
urban	.1006426	.0084946	11.85	0.000	.0839936	.1172916
pctpdfs	.0965957	.0560656	1.72	0.085	-.0132908	.2064821

readlevel14	**.0007782**	**.0006231**	**1.25**	**0.212**	**-.0004431**	**.0019995**
mathlevel14	**-.000338**	**.0006083**	**-0.56**	**0.578**	**-.0015302**	**.0008542**
_cons	**.5120336**	**.0358249**	**14.29**	**0.000**	**.4418182**	**.582249**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0283422**	**.0072548**	**.0171612**	**.0468077**
geodistrict: Identity var(_cons)	**.0357943**	**.0020168**	**.0320518**	**.0399738**
var(Residual)	**.0278607**	**.0006044**	**.026701**	**.0290708**

LR test vs. linear model: chi2(**2**) = **3217.97** Prob > chi2 = **0.0000**

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

m=3 data:
-> **mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middle high lnage**
> lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1125.0429**
Iteration 1: log likelihood = **1125.0429**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1125.0429** Wald chi2(**12**) = **1332.90**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2159489**	**.0218425**	**-9.89**	**0.000**	**-.2587594**	**-.1731383**
readall14	**-.3198713**	**.0199243**	**-16.05**	**0.000**	**-.3589222**	**-.2808205**
mathall14	**-.0592094**	**.0197915**	**-2.99**	**0.003**	**-.0979999**	**-.0204188**
primary	**.0535286**	**.0066957**	**7.99**	**0.000**	**.0404053**	**.066652**
middle	**.0754055**	**.0099199**	**7.60**	**0.000**	**.055963**	**.0948481**
high	**.064557**	**.0080428**	**8.03**	**0.000**	**.0487933**	**.0803206**
lnage	**-.0104729**	**.0028182**	**-3.72**	**0.000**	**-.0159964**	**-.0049493**
lnstudents	**.0269425**	**.0036407**	**7.40**	**0.000**	**.0198069**	**.0340781**
urban	**.1001652**	**.0084753**	**11.82**	**0.000**	**.0835538**	**.1167766**
pctpdfs	**.0914984**	**.055979**	**1.63**	**0.102**	**-.0182184**	**.2012151**
readlevel14	**.0016132**	**.000661**	**2.44**	**0.015**	**.0003175**	**.0029088**
mathlevel14	**-.0009788**	**.0006494**	**-1.51**	**0.132**	**-.0022516**	**.000294**
_cons	**.5054995**	**.0361211**	**13.99**	**0.000**	**.4347034**	**.5762956**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0287238**	**.0073376**	**.01741**	**.0473897**
geodistrict: Identity var(_cons)	**.0353263**	**.0019946**	**.0316255**	**.0394602**
var(Residual)	**.0278091**	**.000603**	**.0266521**	**.0290164**

LR test vs. linear model: chi2(**2**) = **3223.08** Prob > chi2 = **0.0000**

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

m=4 data:
-> **mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middle high lnage**
> lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1114.576**
Iteration 1: log likelihood = **1114.576**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Wald chi2(**12**) = **1305.99**
Log likelihood = **1114.576** Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2148085**	**.0218803**	**-9.82**	**0.000**	**-.2576931**	**-.171924**
readall14	**-.3053924**	**.0199677**	**-15.29**	**0.000**	**-.3445284**	**-.2662564**
mathall14	**-.0692784**	**.0200333**	**-3.46**	**0.001**	**-.108543**	**-.0300137**
primary	**.0514309**	**.0067108**	**7.66**	**0.000**	**.038278**	**.0645839**
middle	**.0720603**	**.0099223**	**7.26**	**0.000**	**.0526129**	**.0915077**
high	**.0655398**	**.0080526**	**8.14**	**0.000**	**.049757**	**.0813227**
lnage	**-.0113684**	**.0028193**	**-4.03**	**0.000**	**-.0168941**	**-.0058427**
lnstudents	**.0217549**	**.0036187**	**6.01**	**0.000**	**.0146623**	**.0288475**
urban	**.0991058**	**.0084968**	**11.66**	**0.000**	**.0824524**	**.1157591**
pctpdfs	**.1007416**	**.0560536**	**1.80**	**0.072**	**-.0091214**	**.2106046**
readlevel14	**.0005595**	**.0006423**	**0.87**	**0.384**	**-.0006994**	**.0018183**
mathlevel14	**-.0006272**	**.0006152**	**-1.02**	**0.308**	**-.0018329**	**.0005786**
_cons	**.5382378**	**.0361026**	**14.91**	**0.000**	**.467478**	**.6089975**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0286005**	**.0073322**	**.0173043**	**.047271**
geodistrict: Identity var(_cons)	**.0358951**	**.0020191**	**.032148**	**.0400789**
var(Residual)	**.02784**	**.0006038**	**.0266814**	**.0290489**

LR test vs. linear model: chi2(**2**) = **3217.08** Prob > chi2 = **0.0000**

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

m=5 data:
-> **mixed pocschoolprop inquiry_full_log readall14 mathall14 primary middle high lnage**
> lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistrict: ,

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = **1130.1744**
Iteration 1: log likelihood = **1130.1744**

Computing standard errors:

Mixed-effects ML regression Number of obs = **5,784**

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

Log likelihood = **1130.1744**

Wald chi2(**12**) = **1344.42**
Prob > chi2 = **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	**-.2167968**	**.0218221**	**-9.93**	**0.000**	**-.2595674**	**-.1740262**
readall14	**-.3171506**	**.0197115**	**-16.09**	**0.000**	**-.3557845**	**-.2785167**
mathall14	**-.0618627**	**.019517**	**-3.17**	**0.002**	**-.1001154**	**-.0236101**
primary	**.0523169**	**.0066792**	**7.83**	**0.000**	**.0392258**	**.0654079**
middle	**.0750653**	**.0098781**	**7.60**	**0.000**	**.0557045**	**.094426**
high	**.0613489**	**.0080359**	**7.63**	**0.000**	**.0455988**	**.0770989**
lnage	**-.0094452**	**.0028187**	**-3.35**	**0.001**	**-.0149696**	**-.0039207**
lnstudents	**.0256034**	**.0035856**	**7.14**	**0.000**	**.0185758**	**.0326309**
urban	**.1006501**	**.0084714**	**11.88**	**0.000**	**.0840465**	**.1172536**
pctpdfs	**.0907816**	**.0559026**	**1.62**	**0.104**	**-.0187855**	**.2003486**
readlevel14	**.0013346**	**.0006239**	**2.14**	**0.032**	**.0001118**	**.0025574**
mathlevel14	**-.000655**	**.0006071**	**-1.08**	**0.281**	**-.0018448**	**.0005348**
_cons	**.5098366**	**.0360959**	**14.12**	**0.000**	**.4390898**	**.5805833**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity var(_cons)	**.0291833**	**.0074428**	**.0177031**	**.0481084**
geodistrict: Identity var(_cons)	**.035652**	**.0020059**	**.0319294**	**.0398085**
var(Residual)	**.027693**	**.0006006**	**.0265406**	**.0288955**

LR test vs. linear model: chi2(**2**) = **3249.99** Prob > chi2 = **0.0000**

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

```
37. mi est, dots post: mixed pocschoolprop inquiry_full_log readall14 mathall14 primary
  > middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || 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    =      5,784
```

Group Variable	No. of Groups	Observations per Group Minimum	Average	Maximum
state	**43**	**2**	**134.5**	**1,056**
geodistrict	**1,492**	**1**	**3.9**	**251**

```
                                                  Average RVI      =     0.0882
                                                  Largest FMI      =     0.2946
  DF adjustment:   Large sample                   DF:     min      =   1,150.12
                                                          avg      = 1161313.43
                                                          max      =   1.46e+07
  Model F test:       Equal FMI                   F(  12,110966.9) =      99.03
                                                  Prob > F         =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_log	-.2167413	.0220573	-9.83	0.000	-.2599729	-.1735096
readall14	-.3137082	.0228658	-13.72	0.000	-.3585557	-.2688607
mathall14	-.0638949	.0230009	-2.78	0.006	-.1090113	-.0187786
primary	.0522151	.0067536	7.73	0.000	.0389782	.0654521
middle	.0747271	.0100059	7.47	0.000	.0551158	.0943383
high	.0637906	.0081617	7.82	0.000	.0477938	.0797873
lnage	-.0099234	.0028604	-3.47	0.001	-.0155298	-.0043171
lnstudents	.0237462	.0038617	6.15	0.000	.0161759	.0313165
urban	.1008339	.0085228	11.83	0.000	.0841294	.1175384
pctpdfs	.100784	.0565296	1.78	0.075	-.0100124	.2115804
readlevel14	.0009618	.0007573	1.27	0.204	-.000524	.0024477
mathlevel14	-.0007055	.0007295	-0.97	0.334	-.0021367	.0007257
_cons	.523291	.0370947	14.11	0.000	.4505837	.5959983

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	.1692755	.021654	.1317368	.2175109
geodistrict: Identity sd(_cons)	.1887468	.0053404	.1785648	.1995094
sd(Residual)	.1667016	.0018239	.1631649	.170315

```
38. est store poc3

39. ereturn list
```

```
scalars:
              e(small) =  0
           e(nrgroups) =  1
               e(ll_c) =  .
               e(k_rs) =  3
                  e(N) =  5784
               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) =  5784
           e(N_max_mi) =  5784
         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) =  1150.116557408498
          e(df_avg_mi) =  1161313.427442385
          e(df_max_mi) =  14559157.12726477
         e(fmi_max_mi) =  .2946164843350966
         e(rvi_avg_mi) =  .0882197696200363
               e(p_mi) =  1.2499429142e-245
            e(ufmi_mi) =  0
       e(rvi_avg_F_mi) =  .1150022887710997
               e(F_mi) =  99.02883793653548
            e(df_m_mi) =  12
            e(df_r_mi) =  110966.9030693944
            e(df_c_mi) =  .
               e(N_mi) =  5784
               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 readall14 mathall14 primary m
> id.."
           e(vartypes) : "Identity Identity"
              e(title) : "Mixed-effects ML regression"
          e(stripe_se) : "pocschoolprop:inquiry_full_log pocschoolprop:readall14 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 readall14 mathall14 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) : "1815213689XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 20.."
    e(_sortseedcmd_mi) : "2110589113XZA112210f4b16c1cb10507a1f38cb440c40003c9a83566fa1
> 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
  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")
  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_101019.smcl
    log type:  smcl
   closed on:  18 Oct 2019, 14:29:24
```