Statistics/Data Analysis

```
      name:  <unnamed>
       log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_2_
> schpov_mi100_linear_clusts_101019.smcl
  log type:  smcl
 opened on:  31 Oct 2019, 17:06:58

1 . ** -------------------------------------------------
2 . ** FULLY NESTED MIXED-EFFECTS LINEAR MODELS (100 IMPUTATIONS) PT 2: IBL, ACADEMICS -
  > > POVERTY
3 . ** -------------------------------------------------
4 .
5 . * 0. controls only
6 . *mi xeq 1 / 5: mixed povertyschoolprop primary middle high lnage lnstudents urban ||
  >  _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
7 . mi est, dots post: mixed povertyschoolprop primary middle high lnage lnstudents urba
  > n || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)

  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
_all	**1**	**5,784**	**5,784.0**	**5,784**
geodistrict	**1,481**	**1**	**3.9**	**251**

```
                                                    Average RVI       =     0.0722
                                                    Largest FMI       =     0.1404
  DF adjustment:   Large sample                     DF:     min       =   5,045.64
                                                            avg       =  36,663.93
                                                            max       = 167,687.16
  Model F test:       Equal FMI                     F(   6,97998.8)   =      12.51
                                                    Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**-.0065672**	**.0094501**	**-0.69**	**0.487**	**-.0250902**	**.0119557**
middle	**.0188374**	**.0139471**	**1.35**	**0.177**	**-.0084998**	**.0461746**
high	**-.0178109**	**.0112731**	**-1.58**	**0.114**	**-.0399069**	**.0042852**
lnage	**.005463**	**.0040582**	**1.35**	**0.178**	**-.0024914**	**.0134174**
lnstudents	**-.0256485**	**.0046646**	**-5.50**	**0.000**	**-.0347932**	**-.0165039**
urban	**.0646214**	**.0104585**	**6.18**	**0.000**	**.0441227**	**.0851201**
_cons	**.6603699**	**.0354385**	**18.63**	**0.000**	**.5909061**	**.7298337**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
_all: Identity sd(R.cmoname)	**.12421**	**.0096172**	**.1067208**	**.1445652**
_all: Identity sd(R.state)	**.1117123**	**.0165339**	**.0835832**	**.1493082**
geodistrict: Identity sd(_cons)	**.1571603**	**.0065061**	**.1449117**	**.1704443**
sd(Residual)	**.228784**	**.0026838**	**.2235827**	**.2341063**

```
8 . est store pov0

9 . est save "model_estimates/2a_schpov_controls_mi100_linear_clusts.ster", replace
  (note: file model_estimates/2a_schpov_controls_mi100_linear_clusts.ster not found)
  file model_estimates/2a_schpov_controls_mi100_linear_clusts.ster saved

10. outreg2 using "tables/2a_schpov_controls_mi100_linear_clusts.rtf", replace word labe
  > l onecol 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 3", "Mixed Effects Models: Effects of IBL Emphasis and Academic Profici
  > ency on Number of Poor Students") ///
  > ctitle("M0: Controls only")
  (note: file tables/2a_schpov_controls_mi100_linear_clusts.rtf not found)
  tables/2a_schpov_controls_mi100_linear_clusts.rtf
  seeout

11.
12. * 1. IBL
13. *mi xeq 1 / 5: mixed povertyschoolprop inquiry_full_log primary middle high lnage ln
  > students urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstr
  > uctured)
14. mi est, dots post: mixed povertyschoolprop inquiry_full_log primary middle high lnag
  > e lnstudents urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(u
  > nstructured)

  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

  ------------------------------------------------------------------------------
                  |  No. of       Observations per Group
  Group Variable  |  Groups    Minimum    Average    Maximum
  ----------------+-------------------------------------------------------------
                _all          1      5,784    5,784.0      5,784
           geodistrict      1,481          1        3.9        251
  ------------------------------------------------------------------------------

                                                    Average RVI      =     0.0724
                                                    Largest FMI      =     0.1401
  DF adjustment:   Large sample                     DF:     min      =   5,070.65
                                                            avg      =  33,542.77
                                                            max      = 158,170.33
  Model F test:       Equal FMI                     F(   8,143787.3) =      22.33
                                                    Prob > F         =     0.0000

  ------------------------------------------------------------------------------
  povertyschoolprop |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
  ------------------+-----------------------------------------------------------
   inquiry_full_log |  -.3179862   .0314589   -10.11   0.000    -.3796476   -.2563248
            primary |  -.0065732   .0093766    -0.70   0.483    -.0249522    .0118058
             middle |   .0147216   .0138522     1.06   0.288    -.0124296    .0418728
               high |  -.0207536   .0111925    -1.85   0.064    -.0426917    .0011844
              lnage |   .0039075   .0040295     0.97   0.332    -.0039906    .0118055
         lnstudents |  -.0222345    .004636    -4.80   0.000     -.031323    -.013146
              urban |   .0676617   .0103231     6.55   0.000     .0474282    .0878952
            pctpdfs |   .0398612   .0769276     0.52   0.604    -.1109194    .1906418
              _cons |   .6838566   .0351248    19.47   0.000     .6150071    .7527062
  ------------------------------------------------------------------------------
```

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
_all: Identity sd(R.cmoname)	**.1279299**	**.0096903**	**.1102794**	**.1484054**
_all: Identity sd(R.state)	**.1084933**	**.0162157**	**.080943**	**.1454207**
geodistrict: Identity sd(_cons)	**.1525002**	**.0064536**	**.1403612**	**.1656891**
sd(Residual)	**.227009**	**.0026664**	**.2218415**	**.2322968**

```
15. est store pov1

16. est save "model_estimates/2b_schpov_ibl_mi100_linear_clusts.ster", replace
  (note: file model_estimates/2b_schpov_ibl_mi100_linear_clusts.ster not found)
  file model_estimates/2b_schpov_ibl_mi100_linear_clusts.ster saved

17. outreg2 using "tables/2b_schpov_ibl_mi100_linear_clusts.rtf", replace word label one
  > col 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(***, **, *) ///
  > ctitle("M1: IBL emphasis")
  (note: file tables/2b_schpov_ibl_mi100_linear_clusts.rtf not found)
  tables/2b_schpov_ibl_mi100_linear_clusts.rtf
  seeout

18.
19. * 2. academic performance
20. *mi xeq 1 / 5: mixed povertyschoolprop readall14 mathall14 primary middle high lnage
  >  lnstudents urban readlevel14 mathlevel14 || _all:R.cmoname || _all:R.state || geodi
  > strict: , cov(unstructured)
21. mi est, dots post: mixed povertyschoolprop readall14 mathall14 primary middle high l
  > nage lnstudents urban readlevel14 mathlevel14 || _all:R.cmoname || _all:R.state || g
  > eodistrict: , cov(unstructured)

  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
_all	**1**	**5,784**	**5,784.0**	**5,784**
geodistrict	**1,481**	**1**	**3.9**	**251**

```
                                                  Average RVI      =     0.1944
                                                  Largest FMI      =     0.3236
  DF adjustment:   Large sample                   DF:     min      =     953.86
                                                          avg      =  11,435.79
                                                          max      =  79,844.45
  Model F test:       Equal FMI                   F(  10,26000.2)  =     114.07
                                                  Prob > F         =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	**-.4763604**	**.0298075**	**-15.98**	**0.000**	**-.5348563**	**-.4178645**
mathall14	**-.1016904**	**.0299101**	**-3.40**	**0.001**	**-.1603865**	**-.0429943**
primary	**.0079433**	**.0088669**	**0.90**	**0.370**	**-.0094383**	**.025325**
middle	**.0273348**	**.0131103**	**2.08**	**0.037**	**.0016358**	**.0530337**
high	**.0044365**	**.0106694**	**0.42**	**0.678**	**-.0164781**	**.0253511**
lnage	**.0170401**	**.003785**	**4.50**	**0.000**	**.0096206**	**.0244595**
lnstudents	**-.0050301**	**.0052235**	**-0.96**	**0.336**	**-.0152765**	**.0052163**
urban	**.0557511**	**.0092946**	**6.00**	**0.000**	**.037533**	**.0739693**
readlevel14	**.000962**	**.000952**	**1.01**	**0.312**	**-.0009058**	**.0028299**
mathlevel14	**-.0010089**	**.0009295**	**-1.09**	**0.278**	**-.0028325**	**.0008147**
_cons	**.7967073**	**.0400019**	**19.92**	**0.000**	**.7182702**	**.8751444**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
_all: Identity sd(R.cmoname)	**.1207581**	**.0088944**	**.1045241**	**.1395134**
_all: Identity sd(R.state)	**.1205866**	**.0163478**	**.0924487**	**.1572888**
geodistrict: Identity sd(_cons)	**.1215022**	**.0060973**	**.1101192**	**.1340619**
sd(Residual)	**.2101469**	**.0025544**	**.2051972**	**.2152161**

```
22. est store pov2

23. est save "model_estimates/2c_schpov_acad_mi100_linear_clusts.ster", replace
  (note: file model_estimates/2c_schpov_acad_mi100_linear_clusts.ster not found)
  file model_estimates/2c_schpov_acad_mi100_linear_clusts.ster saved

24. outreg2 using "tables/2c_schpov_acad_mi100_linear_clusts.rtf", replace word label on
  > ecol 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(***, **, *) ///
  > ctitle("M2: Academic proficiency")
  (note: file tables/2c_schpov_acad_mi100_linear_clusts.rtf not found)
  tables/2c_schpov_acad_mi100_linear_clusts.rtf
  seeout

25.
26. * 3. fully specified
27. *mi xeq 1 / 5: mixed povertyschoolprop inquiry_full_log readall14 mathall14 primary
  > middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || _all:R.cmoname
  >  || _all:R.state || geodistrict: , cov(unstructured)
28. mi est, dots post: mixed povertyschoolprop inquiry_full_log readall14 mathall14 prim
  > ary middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || _all:R.cmo
  > name || _all:R.state || geodistrict: , cov(unstructured)

  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
_all	**1**	**5,784**	**5,784.0**	**5,784**
geodistrict	**1,481**	**1**	**3.9**	**251**

```
                                                Average RVI       =     0.1836
                                                Largest FMI       =     0.3269
DF adjustment:   Large sample                   DF:     min       =     934.38
                                                        avg       =  11,528.44
                                                        max       =  76,715.36
Model F test:       Equal FMI                   F(  12,37046.7)   =     101.72
                                                Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_log	-.2032577	.0292202	-6.96	0.000	-.2605328	-.1459826
readall14	-.4573807	.029938	-15.28	0.000	-.5161343	-.3986272
mathall14	-.1085269	.0298939	-3.63	0.000	-.167193	-.0498608
primary	.0079014	.008832	0.89	0.371	-.0094117	.0252145
middle	.0244043	.013072	1.87	0.062	-.0012195	.0500282
high	.0022573	.0106323	0.21	0.832	-.0185845	.0230992
lnage	.0157141	.0037717	4.17	0.000	.0083207	.0231076
lnstudents	-.0036948	.0052078	-0.71	0.478	-.0139103	.0065208
urban	.0579053	.0092279	6.28	0.000	.0398179	.0759927
pctpdfs	.012743	.0709068	0.18	0.857	-.1262435	.1517295
readlevel14	.000983	.0009472	1.04	0.300	-.0008754	.0028414
mathlevel14	-.001095	.0009274	-1.18	0.238	-.0029145	.0007244
_cons	.8110594	.0398092	20.37	0.000	.7329991	.8891198

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
_all: Identity sd(R.cmoname)	.1222254	.0089163	.1059405	.1410136
_all: Identity sd(R.state)	.1182133	.0161381	.090461	.1544796
geodistrict: Identity sd(_cons)	.1191354	.0060747	.1078033	.1316588
sd(Residual)	.2094411	.0025464	.2045067	.2144945

```
29. est store pov3

30. est save "model_estimates/2d_schpov_full_mi100_linear_clusts.ster", replace
  (note: file model_estimates/2d_schpov_full_mi100_linear_clusts.ster not found)
  file model_estimates/2d_schpov_full_mi100_linear_clusts.ster saved

31. outreg2 using "tables/2d_schpov_full_mi100_linear_clusts.rtf", replace word label on
  > ecol 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(***, **, *) ///
  > ctitle("M3: Fully specified")
  (note: file tables/2d_schpov_full_mi100_linear_clusts.rtf not found)
  tables/2d_schpov_full_mi100_linear_clusts.rtf
  seeout

32.
33. log close
       name:  <unnamed>
        log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_2_
  > schpov_mi100_linear_clusts_101019.smcl
    log type:  smcl
   closed on:   2 Nov 2019, 11:57:10
```