Statistics/Data Analysis

```
      name:  <unnamed>
       log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_qu
> ickpass_mi100_linear_clusts_101019.smcl
  log type:  smcl
 opened on:  15 Oct 2019, 10:46:33

1 . ** -------------------------------------------------------
2 . ** FULLY NESTED MODELS: QUICK PASS OF ONE IMPUTATION EACH
3 . ** -------------------------------------------------------
4 .
5 . ** FULLY NESTED MIXED-EFFECTS LINEAR MODELS PT 1: RACE & POVERTY -> IBL
6 .
7 . * 0. controls only
8 . mi xeq 1: mixed inquiry_full_log primary middle high lnage lnstudents urban pctpdfs
> || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)

  m=1 data:
  -> mixed inquiry_full_log primary middle high lnage lnstudents urban pctpdfs || _all:R
  > .cmoname || _all:R.state || geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  4562.1359
  Iteration 1:   log likelihood =  4563.9654
  Iteration 2:   log likelihood =  4563.9668
  Iteration 3:   log likelihood =  4563.9668

  Computing standard errors:
```

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

Group Variable	No. of Groups	Minimum	Average	Maximum
_all	1	5,784	5,784.0	5,784
geodistrict	1,481	1	3.9	251

Wald chi2(**7**)   =   71.40
Log likelihood = **4563.9668**   Prob > chi2   =   0.0000

inquiry_full_log	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
primary	.0013426	.003901	0.34	0.731	-.0063031	.0089884
middle	-.0124991	.0058186	-2.15	0.032	-.0239033	-.001095
high	-.0097576	.0046736	-2.09	0.037	-.0189177	-.0005976
lnage	-.0048955	.0016684	-2.93	0.003	-.0081654	-.0016256
lnstudents	.0099569	.0018209	5.47	0.000	.0063881	.0135258
urban	.0059421	.0039068	1.52	0.128	-.001715	.0135992
pctpdfs	.118419	.0318136	3.72	0.000	.0560655	.1807726
_cons	.0756538	.0130765	5.79	0.000	.0500244	.1012832

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0059344	.0006623	.0047685	.0073854
_all: Identity				
var(R.state)	.0006984	.0002558	.0003406	.0014318
geodistrict: Identity				
var(_cons)	.0016853	.0002483	.0012626	.0022495

var(Residual)	.0101432	.000223	.0097153	.0105899

LR test vs. linear model: chi2(**3**) = **882.28**   Prob > chi2 = **0.0000**

Note: <u>LR test is conservative</u> and provided only for reference.

9 . * 1. school poverty
10. mi xeq 1: mixed inquiry_full_log povertyschool primary middle high lnage lnstudents
   > urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)

   m=1 data:
   -> **mixed inquiry_full_log povertyschool primary middle high lnage lnstudents urban pct**
   > pdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
   Note: single-variable random-effects specification in geodistrict equation; covariance
       structure set to identity

   Performing EM optimization:

   Performing gradient-based optimization:

   Iteration 0:   log likelihood = **4625.6729**
   Iteration 1:   log likelihood = **4628.1036**
   Iteration 2:   log likelihood = **4628.1054**
   Iteration 3:   log likelihood = **4628.1054**

   Computing standard errors:

   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**

                                               Wald chi2(**8**)   =   **203.70**
   Log likelihood = **4628.1054**   Prob > chi2   =   **0.0000**

inquiry_full_log	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
povertyschool	-.0006201	.0000542	-11.43	0.000	-.0007264	-.0005138
primary	.0007946	.0038597	0.21	0.837	-.0067702	.0083594
middle	-.0116286	.0057605	-2.02	0.044	-.022919	-.0003382
high	-.0110431	.004625	-2.39	0.017	-.020108	-.0019783
lnage	-.004675	.0016489	-2.84	0.005	-.0079069	-.0014432
lnstudents	.0084616	.0018013	4.70	0.000	.0049311	.011992
urban	.0110908	.0038421	2.89	0.004	.0035603	.0186212
pctpdfs	.1135511	.0314229	3.61	0.000	.0519634	.1751388
_cons	.1163203	.0133159	8.74	0.000	.0902216	.142419

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0060439	.0006685	.0048659	.0075071
_all: Identity				
var(R.state)	.0005879	.0002253	.0002774	.0012458
geodistrict: Identity				
var(_cons)	.0014548	.0002331	.0010628	.0019916
var(Residual)	.0099958	.0002196	.0095746	.0104356

LR test vs. linear model: chi2(**3**) = **848.55**   Prob > chi2 = **0.0000**

Note: <u>LR test is conservative</u> and provided only for reference.

```
11. * 2. school race
12. mi xeq 1: mixed inquiry_full_log pocschoolprop primary middle high lnage lnstudents
  > urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
```

m=1 data:
-> mixed inquiry_full_log pocschoolprop primary middle high lnage lnstudents urban pct
> pdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
Note: single-variable random-effects specification in geodistrict equation; covariance
      structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

```
Iteration 0:    log likelihood =  4641.0003
Iteration 1:    log likelihood =  4643.1624
Iteration 2:    log likelihood =  4643.1636
Iteration 3:    log likelihood =  4643.1636
```

Computing standard errors:

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

Wald chi2(**8**)   =   234.08
Log likelihood = **4643.1636**   Prob > chi2   =   0.0000

inquiry_full_log	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
pocschoolprop	-.0800771	.0063159	-12.68	0.000	-.0924561	-.0676981
primary	.0053163	.0038603	1.38	0.168	-.0022496	.0128823
middle	-.0064426	.0057603	-1.12	0.263	-.0177326	.0048473
high	-.0050006	.0046254	-1.08	0.280	-.0140661	.004065
lnage	-.006588	.0016513	-3.99	0.000	-.0098244	-.0033516
lnstudents	.0112313	.0017995	6.24	0.000	.0077044	.0147582
urban	.0192292	.0039827	4.83	0.000	.0114232	.0270352
pctpdfs	.120683	.0313639	3.85	0.000	.0592109	.1821551
_cons	.1104719	.0132795	8.32	0.000	.0844445	.1364993

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0058663	.0006521	.0047177	.0072944
_all: Identity				
var(R.state)	.0007619	.0002722	.0003782	.0015347
geodistrict: Identity				
var(_cons)	.0015889	.0002476	.0011708	.0021564
var(Residual)	.0098787	.0002192	.0094584	.0103178

LR test vs. linear model: chi2(**3**) = **835.68**   Prob > chi2 = **0.0000**

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

```
13. * 3. school district poverty
14. mi xeq 1: mixed inquiry_full_log povertysd primary middle high lnage lnstudents urba
 > n pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
```

m=1 data:
-> **mixed inquiry_full_log povertysd primary middle high lnage lnstudents urban pctpdfs**
> || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
Note: single-variable random-effects specification in geodistrict equation; covariance
      structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

```
Iteration 0:   log likelihood =  4587.0427
Iteration 1:   log likelihood =  4589.5237
Iteration 2:   log likelihood =  4589.5257
Iteration 3:   log likelihood =  4589.5257
```

Computing standard errors:

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

```
                                              Wald chi2(8)      =     124.32
Log likelihood =  4589.5257                   Prob > chi2       =     0.0000
```

inquiry_full_log	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
povertysd	-.2137288	.0295683	-7.23	0.000	-.2716816	-.155776
primary	.001165	.0038861	0.30	0.764	-.0064516	.0087815
middle	-.012866	.0058004	-2.22	0.027	-.0242346	-.0014975
high	-.0094512	.0046559	-2.03	0.042	-.0185766	-.0003257
lnage	-.004915	.0016603	-2.96	0.003	-.0081692	-.0016608
lnstudents	.0101084	.0018097	5.59	0.000	.0065614	.0136554
urban	.012195	.0039373	3.10	0.002	.0044781	.0199119
pctpdfs	.1182624	.0316303	3.74	0.000	.056268	.1802567
_cons	.1011575	.0134072	7.55	0.000	.0748799	.1274351

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0059531	.000661	.0047888	.0074003
_all: Identity				
var(R.state)	.0006273	.0002393	.000297	.0013251
geodistrict: Identity				
var(_cons)	.0014593	.0002349	.0010644	.0020007
var(Residual)	.0101476	.0002224	.0097209	.0105931

LR test vs. linear model: chi2(**3**) = **869.01**   Prob > chi2 = **0.0000**

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

```
15. * 4. school district race
16. mi xeq 1: mixed inquiry_full_log pocsd primary middle high lnage lnstudents urban pc
  > tpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
```

m=1 data:
-> **mixed inquiry_full_log pocsd primary middle high lnage lnstudents urban pctpdfs ||**
> _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
Note: single-variable random-effects specification in geodistrict equation; covariance
      structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0:   log likelihood = **4566.3226**
Iteration 1:   log likelihood = **4568.3219**
Iteration 2:   log likelihood = **4568.3234**
Iteration 3:   log likelihood = **4568.3234**

Computing standard errors:

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**

                                               Wald chi2(**8**)   =   **80.31**
Log likelihood = **4568.3234**   Prob > chi2   =   **0.0000**

inquiry_full_log	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
pocsd	-.0376403	.0127084	-2.96	0.003	-.0625484	-.0127323
primary	.0019453	.0039037	0.50	0.618	-.0057059	.0095965
middle	-.0114164	.0058289	-1.96	0.050	-.0228407	8.00e-06
high	-.0091235	.0046761	-1.95	0.051	-.0182885	.0000415
lnage	-.0052377	.0016711	-3.13	0.002	-.008513	-.0019623
lnstudents	.010494	.0018283	5.74	0.000	.0069105	.0140774
urban	.0090576	.0040325	2.25	0.025	.001154	.0169612
pctpdfs	.1177054	.0317801	3.70	0.000	.0554175	.1799932
_cons	.0830961	.0132922	6.25	0.000	.0570439	.1091483

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0058948	.0006595	.004734	.0073401
_all: Identity				
var(R.state)	.0006925	.0002546	.0003369	.0014236
geodistrict: Identity				
var(_cons)	.0016285	.0002462	.0012108	.0021903
var(Residual)	.0101545	.0002234	.009726	.0106019

LR test vs. linear model: chi2(**3**) = **867.28**   Prob > chi2 = **0.0000**

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

```
17.
18.
19. ** FULLY NESTED MIXED-EFFECTS LINEAR MODELS PT 2: IBL, ACADEMICS -> POVERTY
20.
21. * 0. controls only
22. mi xeq 1: mixed povertyschoolprop primary middle high lnage lnstudents urban || _all
  > :R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
```

  m=1 data:
  -> mixed povertyschoolprop primary middle high lnage lnstudents urban || _all:R.cmonam
  > e || _all:R.state || geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood = **-404.35461**
  Iteration 1:   log likelihood = **-404.33061**
  Iteration 2:   log likelihood = **-404.33061**

  Computing standard errors:

  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**

                                               Wald chi2(**6**)   =   **83.36**
  Log likelihood = **-404.33061**   Prob > chi2   =   **0.0000**

povertyschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
primary	**-.0087213**	**.0091266**	**-0.96**	**0.339**	**-.026609**	**.0091665**
middle	**.0159343**	**.0135135**	**1.18**	**0.238**	**-.0105516**	**.0424201**
high	**-.0213508**	**.0109145**	**-1.96**	**0.050**	**-.0427428**	**.0000412**
lnage	**.0056785**	**.0039246**	**1.45**	**0.148**	**-.0020136**	**.0133706**
lnstudents	**-.0261785**	**.0043301**	**-6.05**	**0.000**	**-.0346654**	**-.0176917**
urban	**.0652448**	**.0101968**	**6.40**	**0.000**	**.0452595**	**.08523**
_cons	**.6659472**	**.0340634**	**19.55**	**0.000**	**.5991841**	**.7327102**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	**.0149593**	**.0022956**	**.0110736**	**.0202086**
_all: Identity				
var(R.state)	**.0128041**	**.0037427**	**.0072201**	**.0227069**
geodistrict: Identity				
var(_cons)	**.0238271**	**.0019359**	**.0203195**	**.0279403**
var(Residual)	**.0527848**	**.0011508**	**.0505767**	**.0550892**

  LR test vs. linear model: chi2(**3**) = **2243.15**   Prob > chi2 = **0.0000**

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

23. * 1. IBL
24. mi xeq 1: mixed povertyschoolprop inquiry_full_log primary middle high lnage lnstude
  > nts urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructur
  > ed)

  m=1 data:
  -> **mixed povertyschoolprop inquiry_full_log primary middle high lnstudents urban**
  > pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood = **-349.69489**
  Iteration 1:   log likelihood = **-349.66456**
  Iteration 2:   log likelihood = **-349.66456**

  Computing standard errors:

  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**

                                               Wald chi2(**8**)   =   **196.81**
  Log likelihood = **-349.66456**   Prob > chi2   =   **0.0000**

povertyschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
inquiry_full_log	-.3207907	.0304704	-10.53	0.000	-.3805115	-.2610698
primary	-.0087421	.0090492	-0.97	0.334	-.0264782	.0089941
middle	.0118571	.0134117	0.88	0.377	-.0144294	.0381435
high	-.0242991	.0108276	-2.24	0.025	-.0455207	-.0030775
lnage	.0040999	.0038935	1.05	0.292	-.0035311	.011731
lnstudents	-.0226979	.0043039	-5.27	0.000	-.0311334	-.0142624
urban	.0683224	.0100547	6.80	0.000	.0486156	.0880293
pctpdfs	.0136261	.0749115	0.18	0.856	-.1331977	.16045
_cons	.6896673	.0336775	20.48	0.000	.6236607	.755674

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0159604	.002387	.0119053	.0213967
_all: Identity				
var(R.state)	.0120784	.0035649	.0067729	.0215397
geodistrict: Identity				
var(_cons)	.0223588	.0018581	.0189982	.0263139
var(Residual)	.0519605	.0011323	.049788	.0542278

  LR test vs. linear model: chi2(**3**) = **2189.68**   Prob > chi2 = **0.0000**

  Note: <u>LR test is conservative</u> and provided only for reference.

```
25. * 2. academic performance
26. mi xeq 1 : mixed povertyschoolprop readall15 mathall15 primary middle high lnage lns
  > tudents urban readlevel15 mathlevel15 || _all:R.cmoname || _all:R.state || geodistri
  > ct: , cov(unstructured)
```

m=1 data:
-> mixed povertyschoolprop readall15 mathall15 primary middle high lnage lnstudents ur
> ban readlevel15 mathlevel15 || _all:R.cmoname || _all:R.state || geodistrict: , cov(
> unstructured)
Note: single-variable random-effects specification in geodistrict equation; covariance
      structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

```
Iteration 0:   log likelihood =  175.01403
Iteration 1:   log likelihood =  175.16798
Iteration 2:   log likelihood =   175.168
Iteration 3:   log likelihood =   175.168
```

Computing standard errors:

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

Wald chi2(**10**)   =   1411.92
Log likelihood =   **175.168**   Prob > chi2   =   0.0000

povertyschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
readall15	-.4396495	.0263771	-16.67	0.000	-.4913477	-.3879513
mathall15	-.1487685	.0261643	-5.69	0.000	-.2000497	-.0974874
primary	.0120295	.0083942	1.43	0.152	-.0044228	.0284818
middle	.031413	.0124244	2.53	0.011	.0070616	.0557645
high	-.0069068	.0101513	-0.68	0.496	-.0268031	.0129895
lnage	.0158556	.0035759	4.43	0.000	.008847	.0228642
lnstudents	-.0078176	.0044386	-1.76	0.078	-.016517	.0008818
urban	.0529539	.0089661	5.91	0.000	.0353807	.0705271
readlevel15	.0010052	.0007411	1.36	0.175	-.0004473	.0024577
mathlevel15	-.0020418	.0007045	-2.90	0.004	-.0034225	-.0006611
_cons	.8244141	.0353749	23.31	0.000	.7550806	.8937476

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0145028	.002044	.0110023	.019117
_all: Identity				
var(R.state)	.0139303	.0037291	.0082432	.0235411
geodistrict: Identity				
var(_cons)	.0144398	.0013901	.0119568	.0174384
var(Residual)	.04445	.0009665	.0425955	.0463853

LR test vs. linear model: chi2(**3**) = **2354.61**   Prob > chi2 = **0.0000**

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

```
27. * 3. fully specified
28. mi xeq 1 : mixed povertyschoolprop inquiry_full_log readall15 mathall15 primary midd
  > le high lnage lnstudents urban pctpdfs readlevel15 mathlevel15 || _all:R.cmoname ||
  > _all:R.state || geodistrict: , cov(unstructured)
```

m=1 data:
```
-> mixed povertyschoolprop inquiry_full_log readall15 mathall15 primary middle high ln
> age lnstudents urban pctpdfs readlevel15 mathlevel15 || _all:R.cmoname || _all:R.sta
> te || geodistrict: , cov(unstructured)
```
Note: single-variable random-effects specification in geodistrict equation; covariance
       structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

```
Iteration 0:   log likelihood =  201.78639
Iteration 1:   log likelihood =  201.96107
Iteration 2:   log likelihood =  201.96119
Iteration 3:   log likelihood =  201.96119
```

Computing standard errors:

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

```
                                                Wald chi2(12)      =    1483.10
Log likelihood =  201.96119                     Prob > chi2        =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inquiry_full_log	-.2055423	.0280462	-7.33	0.000	-.2605118	-.1505727
readall15	-.4213473	.0263904	-15.97	0.000	-.4730715	-.3696232
mathall15	-.1535244	.0260621	-5.89	0.000	-.2046053	-.1024436
primary	.0119235	.0083597	1.43	0.154	-.0044611	.0283081
middle	.0286504	.0123835	2.31	0.021	.0043792	.0529215
high	-.0091066	.010114	-0.90	0.368	-.0289296	.0107165
lnage	.0145968	.0035643	4.10	0.000	.0076109	.0215828
lnstudents	-.0061421	.0044241	-1.39	0.165	-.0148131	.002529
urban	.0552235	.0089011	6.20	0.000	.0377777	.0726692
pctpdfs	-.008843	.0679747	-0.13	0.896	-.1420709	.1243849
readlevel15	.0010631	.0007382	1.44	0.150	-.0003838	.00251
mathlevel15	-.0020884	.0007017	-2.98	0.003	-.0034638	-.000713
_cons	.836083	.0351094	23.81	0.000	.7672698	.9048961

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
_all: Identity				
var(R.cmoname)	.0147352	.0020618	.0112009	.0193848
_all: Identity				
var(R.state)	.0133802	.0036027	.0078936	.0226804
geodistrict: Identity				
var(_cons)	.0138915	.0013563	.011472	.0168213
var(Residual)	.0441502	.0009591	.0423099	.0460705

LR test vs. linear model: chi2(**3**) = **2281.46**   Prob > chi2 = **0.0000**

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

```
29.
30.
31. ** FULLY NESTED MIXED-EFFECTS LINEAR MODELS PT 3: IBL, ACADEMICS -> RACE
32.
33. * 0. controls only
34. mi xeq 1: mixed pocschoolprop primary middle high lnage lnstudents urban || _all:R.c
  > moname || _all:R.state || geodistrict: , cov(unstructured)
```

  m=1 data:
  -> **mixed pocschoolprop primary middle high lnage lnstudents urban || _all:R.cmoname ||**
  > _all:R.state || geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood = **806.12965**
  Iteration 1:   log likelihood = **806.12972**

  Computing standard errors:

  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**

                                               Wald chi2(**6**)   =   **232.12**
  Log likelihood = **806.12972**   Prob > chi2   =   **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
primary	.0379008	.0071607	5.29	0.000	.0238662	.0519355
middle	.056734	.0104648	5.42	0.000	.0362233	.0772447
high	.0484905	.0085671	5.66	0.000	.0316993	.0652818
lnage	-.0135443	.003089	-4.38	0.000	-.0195985	-.00749
lnstudents	-.0007739	.0034639	-0.22	0.823	-.0075629	.0060152
urban	.1100231	.0088529	12.43	0.000	.0926717	.1273746
_cons	.51009	.0361719	14.10	0.000	.4391943	.5809856

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0109269	.001472	.0083913	.0142286
_all: Identity				
var(R.state)	.0295903	.0075866	.0179024	.048909
geodistrict: Identity				
var(_cons)	.0379301	.0021484	.0339447	.0423835
var(Residual)	.0294606	.0006558	.0282028	.0307745

  LR test vs. linear model: chi2(**3**) = **3329.41**   Prob > chi2 = **0.0000**

  Note: <u>LR test is conservative</u> and provided only for reference.

```
35. * 1. IBL
36. mi xeq 1: mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents
  > urban pctpdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
```

  m=1 data:
  -> **mixed pocschoolprop inquiry_full_log primary middle high lnage lnstudents urban pct**
  > pdfs || _all:R.cmoname || _all:R.state || geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =   **889.9694**
  Iteration 1:   log likelihood =   **889.96946**

  Computing standard errors:

  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**

  Log likelihood = **889.96946**

  Wald chi2(**8**)   =   **407.17**
  Prob > chi2   =   **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
inquiry_full_log	-.3096746	.0238338	-12.99	0.000	-.356388	-.2629613
primary	.0375302	.0070513	5.32	0.000	.02371	.0513504
middle	.052509	.0103082	5.09	0.000	.0323053	.0727127
high	.0452528	.0084402	5.36	0.000	.0287104	.0617952
lnage	-.0147347	.0030435	-4.84	0.000	-.0206999	-.0087696
lnstudents	.0021921	.0034223	0.64	0.522	-.0045156	.0088997
urban	.1119548	.0087322	12.82	0.000	.0948401	.1290695
pctpdfs	.1158298	.0595079	1.95	0.052	-.0008036	.2324632
_cons	.5343757	.035846	14.91	0.000	.4641188	.6046325

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0109849	.0014652	.0084579	.0142669
_all: Identity				
var(R.state)	.0291167	.0074707	.0176093	.048144
geodistrict: Identity				
var(_cons)	.0374133	.0021142	.0334908	.0417951
var(Residual)	.0284828	.0006351	.0272648	.0297551

  LR test vs. linear model: chi2(**3**) = **3292.09**   Prob > chi2 = **0.0000**

  Note: <u>LR test is conservative</u> and provided only for reference.

37. * 2. academic performance
38. mi xeq 1: mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstuden
> ts urban readlevel15 mathlevel15 || _all:R.cmoname || _all:R.state || geodistrict: ,
> cov(unstructured)

  m=1 data:
  -> **mixed pocschoolprop readall15 mathall15 primary middle high lnage lnstudents urban**
  > readlevel15 mathlevel15 || _all:R.cmoname || _all:R.state || geodistrict: , cov(unst
  > ructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood = **1294.3284**
  Iteration 1:   log likelihood = **1294.3284**

  Computing standard errors:

  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**

  Log likelihood = **1294.3284**

  Wald chi2(**10**)   =   **1335.63**
  Prob > chi2   =   **0.0000**

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
readall15	**-.3660847**	**.0207614**	**-17.63**	**0.000**	**-.4067762**	**-.3253932**
mathall15	**-.0495624**	**.0205815**	**-2.41**	**0.016**	**-.0899014**	**-.0092235**
primary	**.0486738**	**.006632**	**7.34**	**0.000**	**.0356753**	**.0616723**
middle	**.0666682**	**.009659**	**6.90**	**0.000**	**.0477369**	**.0855996**
high	**.0566061**	**.0080388**	**7.04**	**0.000**	**.0408503**	**.0723619**
lnage	**-.005354**	**.0028421**	**-1.88**	**0.060**	**-.0109244**	**.0002165**
lnstudents	**.0148536**	**.0035727**	**4.16**	**0.000**	**.0078513**	**.021856**
urban	**.1006739**	**.0081398**	**12.37**	**0.000**	**.0847202**	**.1166277**
readlevel15	**.0016358**	**.0005766**	**2.84**	**0.005**	**.0005057**	**.0027659**
mathlevel15	**-.0017907**	**.000548**	**-3.27**	**0.001**	**-.0028646**	**-.0007167**
_cons	**.6078743**	**.0369911**	**16.43**	**0.000**	**.5353731**	**.6803756**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	**.011345**	**.0014311**	**.00886**	**.014527**
_all: Identity				
var(R.state)	**.0301797**	**.007483**	**.0185636**	**.0490647**
geodistrict: Identity				
var(_cons)	**.0332643**	**.0018961**	**.0297481**	**.0371963**
var(Residual)	**.0244318**	**.0005488**	**.0233795**	**.0255315**

  LR test vs. linear model: chi2(**3**) = **3832.63**   Prob > chi2 = **0.0000**

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

```
39. * 3. fully specified
40. mi xeq 1: mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle hi
  > gh lnage lnstudents urban pctpdfs readlevel15 mathlevel15 || _all:R.cmoname || _all:
  > R.state || geodistrict: , cov(unstructured)

  m=1 data:
  -> mixed pocschoolprop inquiry_full_log readall15 mathall15 primary middle high lnage
  > lnstudents urban pctpdfs readlevel15 mathlevel15 || _all:R.cmoname || _all:R.state |
  > | geodistrict: , cov(unstructured)
  Note: single-variable random-effects specification in geodistrict equation; covariance
        structure set to identity

  Performing EM optimization:

  Performing gradient-based optimization:

  Iteration 0:   log likelihood =  1345.9639
  Iteration 1:   log likelihood =  1345.9639

  Computing standard errors:
```

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

Log likelihood = 1345.9639

Wald chi2(**12**)   =   1462.13
Prob > chi2   =   0.0000

pocschoolprop	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
inquiry_full_log	-.2242223	.0221735	-10.11	0.000	-.2676815	-.180763
readall15	-.347177	.0206424	-16.82	0.000	-.3876352	-.3067187
mathall15	-.0528444	.0203815	-2.59	0.010	-.0927915	-.0128973
primary	.0481443	.0065671	7.33	0.000	.0352729	.0610156
middle	.0632546	.0095684	6.61	0.000	.0445009	.0820083
high	.0537752	.0079643	6.75	0.000	.0381655	.0693848
lnage	-.0064742	.0028168	-2.30	0.022	-.011995	-.0009534
lnstudents	.0163525	.0035428	4.62	0.000	.0094086	.0232963
urban	.1022755	.0080777	12.66	0.000	.0864436	.1181074
pctpdfs	.1092186	.0549107	1.99	0.047	.0015956	.2168417
readlevel15	.0016922	.0005708	2.96	0.003	.0005733	.002811
mathlevel15	-.001829	.0005425	-3.37	0.001	-.0028922	-.0007658
_cons	.6212415	.0367364	16.91	0.000	.5492396	.6932435

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
_all: Identity				
var(R.cmoname)	.0110336	.001392	.0086164	.0141289
_all: Identity				
var(R.state)	.0297995	.0074008	.0183152	.048485
geodistrict: Identity				
var(_cons)	.033244	.0018865	.0297446	.037155
var(Residual)	.0239189	.0005376	.0228881	.0249962

LR test vs. linear model: chi2(**3**) = **3776.38**   Prob > chi2 = **0.0000**

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

  41.
  42. log close
            name: **<unnamed>**
             log: **/hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/results_qu**
      > ickpass_mi100_linear_clusts_101019.smcl
        log type: **smcl**
       closed on: **15 Oct 2019, 12:32:42**
      ───