Statistics/Data Analysis

```
      name:  <unnamed>
       log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/robust_nar
> rowibl_mi5_linear_101019.smcl
  log type:  smcl
 opened on:  18 Oct 2019, 12:55:23

1 . ** -------------------------------------------------
2 . ** 2. ALTERNATIVE MEASURES II: NARROW DICTIONARIES OF IBL
3 . ** -------------------------------------------------
4 .
5 . *
6 . * 2A. RE-RUN LINEAR MIXED MODELS USING SEED IBL DICTIONARY (5 TERMS)
7 . *
8 .
9 . * PT 1:
10. * 0. controls only
11. mi est, dots: mixed inquiry_seed_log primary middle high lnage lnstudents urban pctp
  > dfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0000
                                                    Largest FMI       =     0.0000
  DF adjustment:   Large sample                     DF:     min       =   1.90e+63
                                                            avg       =   1.90e+63
                                                            max       =          .
  Model F test:       Equal FMI                     F(   7, 2.5e+65)  =       7.05
                                                    Prob > F          =     0.0000
```

inquiry_seed_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	.0030956	.0016601	1.86	0.062	-.0001581	.0063492
middle	-.00367	.0024796	-1.48	0.139	-.0085299	.0011899
high	-.0051494	.0019862	-2.59	0.010	-.0090423	-.0012566
lnage	-.0006073	.000684	-0.89	0.375	-.0019479	.0007334
lnstudents	.0024103	.0007136	3.38	0.001	.0010117	.0038089
urban	-.000901	.0013009	-0.69	0.489	-.0034507	.0016488
pctpdfs	.0201656	.013416	1.50	0.133	-.0061294	.0464605
_cons	.0025357	.0047318	0.54	0.592	-.0067385	.0118099

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	.0226198	.0015639	.0197531	.0259024
sd(Residual)	.0459802	.0004383	.0451291	.0468473

```
12. * 1. school poverty
13. mi est, dots: mixed inquiry_seed_log povertyschool primary middle high lnage lnstude
  > nts urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: cmoname                         Number of groups  =        377
                                                  Obs per group:
                                                               min =          1
                                                               avg =       15.3
                                                               max =      3,737
                                                  Average RVI       =     0.0042
                                                  Largest FMI       =     0.0316
  DF adjustment:   Large sample                   DF:     min       =   4,124.81
                                                          avg       = 2198736.82
                                                          max       = 7119960.35
  Model F test:       Equal FMI                   F(   8,842111.8)  =      18.54
                                                  Prob > F          =     0.0000
```

inquiry_seed_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
povertyschool	-.0002046	.0000209	-9.79	0.000	-.0002455	-.0001636
primary	.0028964	.001647	1.76	0.079	-.0003317	.0061245
middle	-.002854	.0024613	-1.16	0.246	-.007678	.00197
high	-.0051905	.0019708	-2.63	0.008	-.0090532	-.0013278
lnage	-.0005022	.0006787	-0.74	0.459	-.0018325	.0008281
lnstudents	.0019967	.0007097	2.81	0.005	.0006058	.0033876
urban	.0017834	.0013199	1.35	0.177	-.0008037	.0043704
pctpdfs	.0195426	.0133196	1.47	0.142	-.0065633	.0456486
_cons	.0158574	.0048819	3.25	0.001	.006289	.0254257

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	.02228	.0015685	.0194084	.0255764
sd(Residual)	.0456011	.0004352	.0447561	.0464621

```
14. * 2. school race
15. mi est, dots: mixed inquiry_seed_log pocschoolprop primary middle high lnage lnstude
  > nts urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: cmoname                         Number of groups  =        377
                                                  Obs per group:
                                                               min =          1
                                                               avg =       15.3
                                                               max =      3,737
                                                  Average RVI       =     0.0000
                                                  Largest FMI       =     0.0000
  DF adjustment:   Large sample                   DF:     min       =   1.33e+61
                                                          avg       =   1.33e+61
                                                          max       =          .
  Model F test:       Equal FMI                   F(   8, 3.9e+63)  =      14.73
                                                  Prob > F          =     0.0000
```

inquiry_seed_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
pocschoolprop	-.0188987	.0022921	-8.25	0.000	-.023391	-.0144063
primary	.0044535	.0016586	2.69	0.007	.0012027	.0077043
middle	-.0013839	.0024807	-0.56	0.577	-.006246	.0034781
high	-.0036999	.0019825	-1.87	0.062	-.0075856	.0001858
lnage	-.0011427	.0006832	-1.67	0.094	-.0024818	.0001964
lnstudents	.0032416	.0007167	4.52	0.000	.0018369	.0046462
urban	.003848	.001416	2.72	0.007	.0010727	.0066233
pctpdfs	.0200733	.0133382	1.50	0.132	-.0060691	.0462156
_cons	.0088796	.0047702	1.86	0.063	-.0004698	.018229

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	.0227445	.001558	.019887	.0260125
sd(Residual)	.0456965	.0004356	.0448506	.0465583

```
16. * 3. school district poverty
17. mi est, dots: mixed inquiry_seed_log povertysd primary middle high lnage lnstudents
  > urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0002
                                                    Largest FMI       =     0.0024
  DF adjustment:   Large sample                     DF:     min       = 716,885.30
                                                            avg       =   6.36e+09
                                                            max       =   2.38e+10
  Model F test:       Equal FMI                     F(   8, 2.3e+08)  =      11.89
                                                    Prob > F          =     0.0000
```

inquiry_seed_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
povertysd	-.0624919	.0092814	-6.73	0.000	-.0806832	-.0443006
primary	.0029884	.0016537	1.81	0.071	-.0002528	.0062296
middle	-.0038587	.0024701	-1.56	0.118	-.0087	.0009826
high	-.0048985	.0019788	-2.48	0.013	-.0087768	-.0010201
lnage	-.0005371	.0006815	-0.79	0.431	-.0018728	.0007985
lnstudents	.0025115	.000711	3.53	0.000	.001118	.003905
urban	.0024169	.0013864	1.74	0.081	-.0003003	.0051341
pctpdfs	.0195799	.013364	1.47	0.143	-.006613	.0457729
_cons	.0097585	.004834	2.02	0.044	.0002842	.0192329

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	.0225204	.0015602	.0196609	.0257957
sd(Residual)	.0458013	.0004366	.0449535	.0466652

```
18. * 4. school district race
19. mi est, dots: mixed inquiry_seed_log pocsd primary middle high lnage lnstudents urba
  > n pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: cmoname                         Number of groups  =        377
                                                  Obs per group:
                                                               min =          1
                                                               avg =       15.3
                                                               max =      3,737
                                                  Average RVI       =     0.0003
                                                  Largest FMI       =     0.0035
  DF adjustment:   Large sample                   DF:     min       = 334,121.20
                                                          avg       =   4.42e+11
                                                          max       =   2.72e+12
  Model F test:       Equal FMI                   F(   8, 1.3e+08)  =       6.35
                                                  Prob > F          =     0.0000
```

inquiry_seed_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
pocsd	-.0044098	.0036416	-1.21	0.226	-.0115472	.0027276
primary	.0032134	.0016627	1.93	0.053	-.0000454	.0064722
middle	-.0034637	.0024851	-1.39	0.163	-.0083344	.001407
high	-.0050728	.001987	-2.55	0.011	-.0089672	-.0011785
lnage	-.000673	.0006861	-0.98	0.327	-.0020177	.0006718
lnstudents	.0025569	.0007237	3.53	0.000	.0011383	.0039754
urban	-.0002416	.0014103	-0.17	0.864	-.0030058	.0025225
pctpdfs	.0199858	.0134151	1.49	0.136	-.0063074	.046279
_cons	.002972	.0047453	0.63	0.531	-.0063287	.0122726

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	.0226537	.0015654	.0197843	.0259393
sd(Residual)	.0459721	.0004382	.0451211	.0468391

```
20.
21. * PT 2:
22. * 0. controls only
23. mi est, dots: mixed povertyschoolprop primary middle high lnage lnstudents urban ||
  > geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: geodistrict                     Number of groups  =      1,481
                                                  Obs per group:
                                                               min =          1
                                                               avg =        3.9
                                                               max =        251
                                                  Average RVI       =     0.0675
                                                  Largest FMI       =     0.1351
  DF adjustment:   Large sample                   DF:     min       =     244.08
                                                          avg       =   3,183.61
                                                          max       =  13,397.08
  Model F test:       Equal FMI                   F(   6, 3281.1)   =      10.99
                                                  Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	-.0046805	.0095632	-0.49	0.625	-.0234571	.0140962
middle	.0323977	.0140638	2.30	0.021	.0048021	.0599933
high	-.0094542	.011426	-0.83	0.408	-.0319004	.0129919
lnage	.0014568	.0040016	0.36	0.716	-.006399	.0093127
lnstudents	-.0169675	.0044046	-3.85	0.000	-.0256434	-.0082916
urban	.0695119	.0108689	6.40	0.000	.0482066	.0908172
_cons	.5703494	.026164	21.80	0.000	.518934	.6217649

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	.1900546	.0064028	.1779097	.2030286
sd(Residual)	.2390346	.0026034	.2339817	.2441967

```
24. * 1. IBL
25. mi est, dots: mixed povertyschoolprop inquiry_seed_log primary middle high lnage lns
  > tudents urban pctpdfs || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: geodistrict                       Number of groups  =      1,481
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =        3.9
                                                                  max =        251
                                                    Average RVI       =     0.0771
                                                    Largest FMI       =     0.1767
  DF adjustment:   Large sample                     DF:     min       =     145.99
                                                            avg       =   2,812.09
                                                            max       =  11,379.09
  Model F test:       Equal FMI                     F(   8, 3822.0)   =      16.99
                                                    Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_seed_log	-.6181309	.0725629	-8.52	0.000	-.7603944	-.4758673
primary	-.0024443	.0095173	-0.26	0.797	-.0211317	.016243
middle	.0304303	.0140164	2.17	0.030	.0029248	.0579358
high	-.0113179	.0113663	-1.00	0.320	-.0336475	.0110117
lnage	.0008859	.0039857	0.22	0.824	-.0069397	.0087115
lnstudents	-.0156119	.0043875	-3.56	0.000	-.0242562	-.0069676
urban	.0692566	.0107733	6.43	0.000	.0481389	.0903743
pctpdfs	.0334686	.0833112	0.40	0.688	-.1311833	.1981204
_cons	.5769613	.0260094	22.18	0.000	.5258484	.6280742

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	.1866115	.0063618	.1745489	.1995079
sd(Residual)	.2379417	.0025917	.2329113	.2430807

```
26. * 2. academic performance
27. mi est, dots: mixed povertyschoolprop readall14 mathall14 primary middle high lnage
  > lnstudents urban readlevel14 mathlevel14 || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: geodistrict                     Number of groups  =      1,481
                                                  Obs per group:
                                                               min =          1
                                                               avg =        3.9
                                                               max =        251
                                                  Average RVI       =     0.2201
                                                  Largest FMI       =     0.3683
  DF adjustment:   Large sample                   DF:     min       =      35.85
                                                          avg       =     866.14
                                                          max       =   6,093.00
  Model F test:       Equal FMI                   F(  10,  789.4)   =      90.63
                                                  Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	-.4410165	.0284298	-15.51	0.000	-.4976251	-.3844078
mathall14	-.0671554	.0302048	-2.22	0.033	-.1284005	-.0059102
primary	.0029805	.0088278	0.34	0.736	-.0143448	.0203057
middle	.0395737	.0130393	3.03	0.002	.0139981	.0651492
high	.0036065	.0119336	0.30	0.764	-.0202931	.0275062
lnage	.0083949	.0039555	2.12	0.036	.0005555	.0162344
lnstudents	.0002029	.0050872	0.04	0.968	-.0099364	.0103421
urban	.0638187	.010223	6.24	0.000	.0437565	.0838809
readlevel14	-.0006173	.0008473	-0.73	0.467	-.0022811	.0010464
mathlevel14	.0002824	.0008299	0.34	0.734	-.0013483	.0019132
_cons	.7098465	.0346865	20.46	0.000	.6394886	.7802045

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	.1736084	.00578	.1626394	.1853172
sd(Residual)	.22001	.0025146	.2151027	.2250292

```
28. * 3. fully specified
29. mi est, dots: mixed povertyschoolprop inquiry_seed_log readall14 mathall14 primary m
  > iddle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: geodistrict                     Number of groups  =      1,481
                                                  Obs per group:
                                                               min =          1
                                                               avg =        3.9
                                                               max =        251
                                                  Average RVI       =     0.2068
                                                  Largest FMI       =     0.3685
  DF adjustment:   Large sample                   DF:     min       =      35.81
                                                          avg       =     860.35
                                                          max       =   6,945.13
  Model F test:       Equal FMI                   F(  12, 1121.0)   =      80.51
                                                  Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_seed_log	**-.4414731**	**.0695062**	**-6.35**	**0.000**	**-.5780823**	**-.3048639**
readall14	**-.4326209**	**.0278666**	**-15.52**	**0.000**	**-.4879026**	**-.3773391**
mathall14	**-.0671704**	**.030143**	**-2.23**	**0.032**	**-.1283144**	**-.0060264**
primary	**.0044837**	**.0088079**	**0.51**	**0.611**	**-.0128034**	**.0217708**
middle	**.0379363**	**.0130075**	**2.92**	**0.004**	**.0124227**	**.0634498**
high	**.0021774**	**.0118687**	**0.18**	**0.855**	**-.021579**	**.0259339**
lnage	**.0078302**	**.003949**	**1.98**	**0.050**	**1.34e-06**	**.015659**
lnstudents	**.0007349**	**.0050602**	**0.15**	**0.885**	**-.0093466**	**.0108164**
urban	**.0637331**	**.0101506**	**6.28**	**0.000**	**.0438153**	**.083651**
pctpdfs	**.031921**	**.0783262**	**0.41**	**0.684**	**-.1234243**	**.1872663**
readlevel14	**-.0005718**	**.0008496**	**-0.67**	**0.501**	**-.0022412**	**.0010976**
mathlevel14	**.0002212**	**.0008183**	**0.27**	**0.787**	**-.001385**	**.0018275**
_cons	**.7131585**	**.0341616**	**20.88**	**0.000**	**.6440876**	**.7822293**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	**.1713639**	**.0057495**	**.1604559**	**.1830135**
sd(Residual)	**.2194753**	**.0024907**	**.2146193**	**.2244412**

```
30.
31. * PT 3:
32. * 0. controls only
33. mi est, dots: mixed pocschoolprop primary middle high lnage lnstudents urban || stat
  > e: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations      =          5
  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       =   9.88e+54
                                                            avg       =   2.10e+60
                                                            max       =          .
  Model F test:       Equal FMI                     F(   6, 2.1e+62)  =      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**

```
34. * 1. IBL
35. mi est, dots: mixed pocschoolprop inquiry_seed_log primary middle high lnage lnstude
  > nts urban pctpdfs || state: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations      =          5
  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       =   9.89e+54
                                                          avg       =   1.09e+60
                                                          max       =          .
  Model F test:       Equal FMI                   F(   8, 5.2e+62)  =      40.29
                                                  Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_seed_log	**-.5128717**	**.0561609**	**-9.13**	**0.000**	**-.622945**	**-.4027983**
primary	**.0465932**	**.0071953**	**6.48**	**0.000**	**.0324906**	**.0606958**
middle	**.0686109**	**.0105884**	**6.48**	**0.000**	**.047858**	**.0893639**
high	**.0552883**	**.008544**	**6.47**	**0.000**	**.0385423**	**.0720344**
lnage	**-.0164588**	**.0030397**	**-5.41**	**0.000**	**-.0224166**	**-.010501**
lnstudents	**.006012**	**.003344**	**1.80**	**0.072**	**-.0005421**	**.0125661**
urban	**.1072211**	**.0091212**	**11.76**	**0.000**	**.0893438**	**.1250983**
pctpdfs	**.0702408**	**.0604776**	**1.16**	**0.245**	**-.0482931**	**.1887746**
_cons	**.4387264**	**.0353117**	**12.42**	**0.000**	**.3695167**	**.5079361**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity				
sd(_cons)	**.1756157**	**.0228425**	**.1360964**	**.2266105**
geodistrict: Identity				
sd(_cons)	**.1981411**	**.0056**	**.1874638**	**.2094266**
sd(Residual)	**.1810709**	**.0019526**	**.1772841**	**.1849386**

```
36. * 2. academic performance
37. mi est, dots: mixed pocschoolprop readall14 mathall14 primary middle high lnage lnst
  > udents urban readlevel14 mathlevel14 || state: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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       =     0.1006
                                                  Largest FMI       =     0.3333
  DF adjustment:   Large sample                   DF:     min       =      43.48
                                                          avg       = 134,523.71
                                                          max       = 938,075.43
  Model F test:       Equal FMI                   F(  10, 2229.1)   =     106.73
                                                  Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	**-.3425676**	**.0205975**	**-16.63**	**0.000**	**-.3829903**	**-.3021449**
mathall14	**-.04888**	**.0222751**	**-2.19**	**0.031**	**-.0930694**	**-.0046906**
primary	**.0516087**	**.0067639**	**7.63**	**0.000**	**.0383517**	**.0648657**
middle	**.0790823**	**.0099969**	**7.91**	**0.000**	**.0594887**	**.0986759**
high	**.0648965**	**.008295**	**7.82**	**0.000**	**.0486287**	**.0811642**
lnage	**-.0091191**	**.0029458**	**-3.10**	**0.002**	**-.0149007**	**-.0033375**
lnstudents	**.0233348**	**.0036582**	**6.38**	**0.000**	**.0161645**	**.0305051**
urban	**.0991666**	**.0085948**	**11.54**	**0.000**	**.0823201**	**.1160131**
readlevel14	**.0008406**	**.0007717**	**1.09**	**0.282**	**-.0007151**	**.0023963**
mathlevel14	**-.0003758**	**.000689**	**-0.55**	**0.586**	**-.0017393**	**.0009877**
_cons	**.5003446**	**.0364288**	**13.73**	**0.000**	**.4289397**	**.5717495**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1698052**	**.0217359**	**.132127**	**.218228**
geodistrict: Identity sd(_cons)	**.1887164**	**.0053632**	**.1784919**	**.1995267**
sd(Residual)	**.1683143**	**.0018291**	**.1647671**	**.1719378**

```
38. * 3. fully specified
39. mi est, dots: mixed pocschoolprop inquiry_seed_log readall14 mathall14 primary middl
  > e high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodistri
  > ct: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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	= **0.0927**
		Largest FMI	= **0.3421**
DF adjustment:	**Large sample**	DF: min	= **41.36**
		avg	= **121,542.29**
		max	= **1053560.24**
Model F test:	**Equal FMI**	F(**12**, **3461.6**)	= **94.95**
		Prob > F	= **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_seed_log	**-.3719321**	**.0536482**	**-6.93**	**0.000**	**-.4771611**	**-.266703**
readall14	**-.3357371**	**.0208325**	**-16.12**	**0.000**	**-.3766731**	**-.2948012**
mathall14	**-.0478346**	**.0227855**	**-2.10**	**0.039**	**-.0932943**	**-.0023748**
primary	**.0527612**	**.0067367**	**7.83**	**0.000**	**.0395575**	**.0659649**
middle	**.0774683**	**.0099571**	**7.78**	**0.000**	**.0579527**	**.0969839**
high	**.0638343**	**.0082411**	**7.75**	**0.000**	**.0476742**	**.0799944**
lnage	**-.0096551**	**.0029316**	**-3.29**	**0.001**	**-.0154086**	**-.0039016**
lnstudents	**.0238023**	**.0036531**	**6.52**	**0.000**	**.0166415**	**.0309631**
urban	**.099126**	**.0085531**	**11.59**	**0.000**	**.0823614**	**.1158906**
pctpdfs	**.0750901**	**.056541**	**1.33**	**0.184**	**-.0357354**	**.1859155**
readlevel14	**.0008644**	**.0007726**	**1.12**	**0.270**	**-.0006954**	**.0024242**
mathlevel14	**-.0004084**	**.0006801**	**-0.60**	**0.549**	**-.0017521**	**.0009354**
_cons	**.5038993**	**.0364209**	**13.84**	**0.000**	**.4325109**	**.5752878**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1705648**	**.0218081**	**.1327562**	**.2191411**
geodistrict: Identity sd(_cons)	**.18769**	**.0053355**	**.1775185**	**.1984443**
sd(Residual)	**.1675843**	**.0018211**	**.1640526**	**.171192**

```
40.
41.
42. *
43. * 2B. RE-RUN LINEAR MIXED MODELS USING NARROW IBL DICTIONARY (20 TERMS)
44. *
45.
46. * PT 1:
47. * 0. controls only
48. mi est, dots: mixed inquiry_narrow_log primary middle high lnage lnstudents urban pc
  > tpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group variable: **cmoname** — Number of groups = **377**
Obs per group:
min = **1**
avg = **15.3**
max = **3,737**
Average RVI = **0.0000**
Largest FMI = **0.0000**
DF adjustment: **Large sample** — DF: min = **7.21e+61**
avg = **7.21e+61**
max = **.**
Model F test: **Equal FMI** — F(**7**, **9.6e+63**) = **9.65**
Prob > F = **0.0000**

inquiry_narrow_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**-.0006656**	**.0029292**	**-0.23**	**0.820**	**-.0064067**	**.0050756**
middle	**-.013918**	**.0043775**	**-3.18**	**0.001**	**-.0224978**	**-.0053382**
high	**-.0120412**	**.0035077**	**-3.43**	**0.001**	**-.0189161**	**-.0051663**
lnage	**-.0035767**	**.0012086**	**-2.96**	**0.003**	**-.0059456**	**-.0012078**
lnstudents	**.004848**	**.0012612**	**3.84**	**0.000**	**.0023761**	**.0073199**
urban	**-.0009862**	**.0022961**	**-0.43**	**0.668**	**-.0054866**	**.0035141**
pctpdfs	**.0911201**	**.0236793**	**3.85**	**0.000**	**.0447096**	**.1375307**
_cons	**.0355188**	**.0085089**	**4.17**	**0.000**	**.0188417**	**.0521959**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity sd(_cons)	**.0501075**	**.0030188**	**.0445268**	**.0563878**
sd(Residual)	**.0805562**	**.0007705**	**.07906**	**.0820806**

```
49. * 1. school poverty
50. mi est, dots: mixed inquiry_narrow_log povertyschool primary middle high lnage lnstu
  > dents urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0102
                                                    Largest FMI       =     0.0833
  DF adjustment:   Large sample                     DF:     min       =     619.55
                                                            avg       = 935,922.10
                                                            max       = 4318342.53
  Model F test:       Equal FMI                     F(   8,145871.9)  =      27.85
                                                    Prob > F          =     0.0000
```

inquiry_narrow_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
povertyschool	**-.0004534**	**.0000378**	**-11.99**	**0.000**	**-.0005276**	**-.0003792**
primary	**-.0011345**	**.002893**	**-0.39**	**0.695**	**-.0068048**	**.0045358**
middle	**-.0122738**	**.0043244**	**-2.84**	**0.005**	**-.0207494**	**-.0037982**
high	**-.0121909**	**.0034651**	**-3.52**	**0.000**	**-.0189823**	**-.0053995**
lnage	**-.0033705**	**.0011938**	**-2.82**	**0.005**	**-.0057103**	**-.0010306**
lnstudents	**.0039597**	**.0012485**	**3.17**	**0.002**	**.0015128**	**.0064067**
urban	**.0048993**	**.0023236**	**2.11**	**0.035**	**.0003451**	**.0094536**
pctpdfs	**.0890508**	**.0234093**	**3.80**	**0.000**	**.0431692**	**.1349325**
_cons	**.0650001**	**.0087486**	**7.43**	**0.000**	**.0478531**	**.0821471**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0504579**	**.0030202**	**.0448725**	**.0567386**
sd(Residual)	**.0794276**	**.0007622**	**.0779476**	**.0809357**

```
51. * 2. school race
52. mi est, dots: mixed inquiry_narrow_log pocschoolprop primary middle high lnage lnstu
  > dents urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0000
                                                    Largest FMI       =     0.0000
  DF adjustment:   Large sample                     DF:     min       =          .
                                                            avg       =          .
                                                            max       =          .
  Model F test:       Equal FMI                     F(   8,     .)    =      28.97
                                                    Prob > F          =     0.0000
```

inquiry_narrow_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
pocschoolprop	**-.0511174**	**.0040118**	**-12.74**	**0.000**	**-.0589803**	**-.0432545**
primary	**.0029574**	**.0029025**	**1.02**	**0.308**	**-.0027314**	**.0086463**
middle	**-.0078694**	**.0043427**	**-1.81**	**0.070**	**-.0163809**	**.0006422**
high	**-.0081762**	**.0034726**	**-2.35**	**0.019**	**-.0149824**	**-.00137**
lnage	**-.0050469**	**.0011975**	**-4.21**	**0.000**	**-.0073941**	**-.0026998**
lnstudents	**.0071188**	**.0012565**	**5.67**	**0.000**	**.0046561**	**.0095816**
urban	**.011795**	**.0024766**	**4.76**	**0.000**	**.006941**	**.016649**
pctpdfs	**.0902741**	**.0233514**	**3.87**	**0.000**	**.0445061**	**.1360421**
_cons	**.0527325**	**.0085144**	**6.19**	**0.000**	**.0360446**	**.0694205**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0503314**	**.002999**	**.0447838**	**.0565662**
sd(Residual)	**.0793942**	**.0007596**	**.0779194**	**.080897**

```
53. * 3. school district poverty
54. mi est, dots: mixed inquiry_narrow_log povertysd primary middle high lnage lnstudent
  > s urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784
```

Group variable: **cmoname** — Number of groups = **377**; Obs per group: min = **1**, avg = **15.3**, max = **3,737**; Average RVI = **0.0005**; Largest FMI = **0.0042**

DF adjustment: **Large sample** — DF: min = **225,420.10**, avg = **1.80e+09**, max = **8.51e+09**

Model F test: **Equal FMI** — F(**8**, **7.3e+07**) = **18.66**; Prob > F = **0.0000**

inquiry_narrow_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
povertysd	**-.1471632**	**.0163951**	**-8.98**	**0.000**	**-.1792972**	**-.1150293**
primary	**-.0009582**	**.0029088**	**-0.33**	**0.742**	**-.0066594**	**.004743**
middle	**-.0143441**	**.0043471**	**-3.30**	**0.001**	**-.0228643**	**-.0058238**
high	**-.0114505**	**.0034839**	**-3.29**	**0.001**	**-.0182787**	**-.0046222**
lnage	**-.0034385**	**.0012004**	**-2.86**	**0.004**	**-.0057913**	**-.0010857**
lnstudents	**.005109**	**.0012528**	**4.08**	**0.000**	**.0026535**	**.0075644**
urban	**.0067823**	**.0024388**	**2.78**	**0.005**	**.0020024**	**.0115622**
pctpdfs	**.0895265**	**.0235134**	**3.81**	**0.000**	**.043441**	**.1356119**
_cons	**.052471**	**.0086748**	**6.05**	**0.000**	**.0354687**	**.0694733**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity sd(_cons)	**.0507895**	**.0030153**	**.0452106**	**.0570569**
sd(Residual)	**.0799371**	**.0007647**	**.0784523**	**.0814501**

```
55. * 4. school district race
56. mi est, dots: mixed inquiry_narrow_log pocsd primary middle high lnage lnstudents ur
  > ban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done
```

Multiple-imputation estimates — Imputations = **5**

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

Group variable: **cmoname** — Number of groups = **377**; Obs per group: min = **1**, avg = **15.3**, max = **3,737**; Average RVI = **0.0002**; Largest FMI = **0.0016**

DF adjustment: **Large sample** — DF: min = **1517122.23**, avg = **2.76e+10**, max = **1.26e+11**

Model F test: **Equal FMI** — F(**8**, **5.2e+08**) = **9.95**; Prob > F = **0.0000**

inquiry_narrow_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
pocsd	**-.0222222**	**.0064348**	**-3.45**	**0.001**	**-.0348342**	**-.0096102**
primary	**-.0000913**	**.0029309**	**-0.03**	**0.975**	**-.0058358**	**.0056532**
middle	**-.0129**	**.004383**	**-2.94**	**0.003**	**-.0214904**	**-.0043095**
high	**-.0116605**	**.0035058**	**-3.33**	**0.001**	**-.0185318**	**-.0047892**
lnage	**-.0039079**	**.0012112**	**-3.23**	**0.001**	**-.0062819**	**-.0015339**
lnstudents	**.0055846**	**.0012778**	**4.37**	**0.000**	**.0030801**	**.0080891**
urban	**.0023187**	**.0024854**	**0.93**	**0.351**	**-.0025526**	**.00719**
pctpdfs	**.0901618**	**.0236567**	**3.81**	**0.000**	**.0437955**	**.1365282**
_cons	**.037771**	**.0085246**	**4.43**	**0.000**	**.0210631**	**.054479**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0500258**	**.0030218**	**.0444404**	**.0563132**
sd(Residual)	**.0804749**	**.0007699**	**.0789801**	**.0819981**

```
57.
58. * PT 2:
59. * 0. controls only
60. mi est, dots: mixed povertyschoolprop primary middle high lnage lnstudents urban ||
  > geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: geodistrict                     Number of groups  =      1,481
                                                  Obs per group:
                                                               min =          1
                                                               avg =        3.9
                                                               max =        251
                                                  Average RVI       =     0.0675
                                                  Largest FMI       =     0.1351
  DF adjustment:   Large sample                   DF:     min       =     244.08
                                                          avg       =   3,183.61
                                                          max       =  13,397.08
  Model F test:       Equal FMI                   F(   6, 3281.1)   =      10.99
                                                  Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**-.0046805**	**.0095632**	**-0.49**	**0.625**	**-.0234571**	**.0140962**
middle	**.0323977**	**.0140638**	**2.30**	**0.021**	**.0048021**	**.0599933**
high	**-.0094542**	**.011426**	**-0.83**	**0.408**	**-.0319004**	**.0129919**
lnage	**.0014568**	**.0040016**	**0.36**	**0.716**	**-.006399**	**.0093127**
lnstudents	**-.0169675**	**.0044046**	**-3.85**	**0.000**	**-.0256434**	**-.0082916**
urban	**.0695119**	**.0108689**	**6.40**	**0.000**	**.0482066**	**.0908172**
_cons	**.5703494**	**.026164**	**21.80**	**0.000**	**.518934**	**.6217649**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity				
sd(_cons)	**.1900546**	**.0064028**	**.1779097**	**.2030286**
sd(Residual)	**.2390346**	**.0026034**	**.2339817**	**.2441967**

```
61. * 1. IBL
62. mi est, dots: mixed povertyschoolprop inquiry_narrow_log primary middle high lnage l
  > nstudents urban pctpdfs || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group variable: **geodistrict** — Number of groups = **1,481**
Obs per group:
min = **1**
avg = **3.9**
max = **251**
Average RVI = **0.0796**
Largest FMI = **0.1851**
DF adjustment: **Large sample** — DF: min = **133.63**
avg = **2,360.89**
max = **9,823.68**
Model F test: **Equal FMI** — F(**8**, **3487.4**) = **20.49**
Prob > F = **0.0000**

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_narrow_log	**-.4147041**	**.0416661**	**-9.95**	**0.000**	**-.4964629**	**-.3329453**
primary	**-.0042172**	**.009486**	**-0.44**	**0.657**	**-.0228425**	**.0144082**
middle	**.0279408**	**.0140023**	**2.00**	**0.046**	**.0004606**	**.0554209**
high	**-.0127499**	**.0113487**	**-1.12**	**0.262**	**-.0350465**	**.0095466**
lnage	**.0004024**	**.0039791**	**0.10**	**0.919**	**-.0074108**	**.0082156**
lnstudents	**-.0146535**	**.0043901**	**-3.34**	**0.001**	**-.0233061**	**-.006001**
urban	**.0709964**	**.0107445**	**6.61**	**0.000**	**.049935**	**.0920579**
pctpdfs	**.0681839**	**.0836223**	**0.82**	**0.416**	**-.0972106**	**.2335784**
_cons	**.5896006**	**.025905**	**22.76**	**0.000**	**.5387121**	**.6404891**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	**.1857441**	**.0063477**	**.173709**	**.1986132**
sd(Residual)	**.2373979**	**.002574**	**.232403**	**.2425001**

63. * 2. academic performance
64. mi est, dots: mixed povertyschoolprop readall14 mathall14 primary middle high lnage
> lnstudents urban readlevel14 mathlevel14 || geodistrict: ,

Imputations (**5**):
..... done

Multiple-imputation estimates — Imputations = **5**
Mixed-effects ML regression — Number of obs = **5,784**

Group variable: **geodistrict** — Number of groups = **1,481**
Obs per group:
min = **1**
avg = **3.9**
max = **251**
Average RVI = **0.2201**
Largest FMI = **0.3683**
DF adjustment: **Large sample** — DF: min = **35.85**
avg = **866.14**
max = **6,093.00**
Model F test: **Equal FMI** — F(**10**, **789.4**) = **90.63**
Prob > F = **0.0000**

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	**-.4410165**	**.0284298**	**-15.51**	**0.000**	**-.4976251**	**-.3844078**
mathall14	**-.0671554**	**.0302048**	**-2.22**	**0.033**	**-.1284005**	**-.0059102**
primary	**.0029805**	**.0088278**	**0.34**	**0.736**	**-.0143448**	**.0203057**
middle	**.0395737**	**.0130393**	**3.03**	**0.002**	**.0139981**	**.0651492**
high	**.0036065**	**.0119336**	**0.30**	**0.764**	**-.0202931**	**.0275062**
lnage	**.0083949**	**.0039555**	**2.12**	**0.036**	**.0005555**	**.0162344**
lnstudents	**.0002029**	**.0050872**	**0.04**	**0.968**	**-.0099364**	**.0103421**
urban	**.0638187**	**.010223**	**6.24**	**0.000**	**.0437565**	**.0838809**
readlevel14	**-.0006173**	**.0008473**	**-0.73**	**0.467**	**-.0022811**	**.0010464**
mathlevel14	**.0002824**	**.0008299**	**0.34**	**0.734**	**-.0013483**	**.0019132**

_cons	**.7098465**	**.0346865**	**20.46**	**0.000**	**.6394886**	**.7802045**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	**.1736084**	**.00578**	**.1626394**	**.1853172**
sd(Residual)	**.22001**	**.0025146**	**.2151027**	**.2250292**

```
65. * 3. fully specified
66. mi est, dots: mixed povertyschoolprop inquiry_narrow_log readall14 mathall14 primary
  >  middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || geodistrict:
  > ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: geodistrict                       Number of groups  =      1,481
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =        3.9
                                                                  max =        251
                                                    Average RVI       =     0.2122
                                                    Largest FMI       =     0.3659
  DF adjustment:   Large sample                     DF:     min       =      36.31
                                                            avg       =     826.91
                                                            max       =   6,955.29
  Model F test:       Equal FMI                     F(  12, 1060.2)   =      81.47
                                                    Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_narrow_log	**-.2980379**	**.0407225**	**-7.32**	**0.000**	**-.3784274**	**-.2176484**
readall14	**-.4253674**	**.0282659**	**-15.05**	**0.000**	**-.4816005**	**-.3691342**
mathall14	**-.0717277**	**.0300518**	**-2.39**	**0.022**	**-.1326574**	**-.010798**
primary	**.003339**	**.0087996**	**0.38**	**0.704**	**-.0139331**	**.0206111**
middle	**.0361738**	**.0130117**	**2.78**	**0.006**	**.0106498**	**.0616978**
high	**.0010413**	**.0118727**	**0.09**	**0.930**	**-.0227321**	**.0248147**
lnage	**.0074096**	**.0039457**	**1.88**	**0.063**	**-.0004133**	**.0152325**
lnstudents	**.0013272**	**.0050907**	**0.26**	**0.795**	**-.0088317**	**.0114861**
urban	**.065046**	**.0101442**	**6.41**	**0.000**	**.0451389**	**.0849532**
pctpdfs	**.0567609**	**.0787963**	**0.72**	**0.473**	**-.0996953**	**.213217**
readlevel14	**-.0004949**	**.0008503**	**-0.58**	**0.561**	**-.002166**	**.0011763**
mathlevel14	**.0001456**	**.0008161**	**0.18**	**0.858**	**-.0014562**	**.0017474**
_cons	**.7211073**	**.0340786**	**21.16**	**0.000**	**.6522408**	**.7899738**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	**.1708551**	**.0057351**	**.1599745**	**.1824757**
sd(Residual)	**.219171**	**.0024667**	**.2143668**	**.2240829**

```
67.
68. * PT 3:
69. * 0. controls only
70. mi est, dots: mixed pocschoolprop primary middle high lnage lnstudents urban || stat
  > e: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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       =   9.88e+54
                                                          avg       =   2.10e+60
                                                          max       =          .
  Model F test:       Equal FMI                   F(   6, 2.1e+62)  =      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**

```
71. * 1. IBL
72. mi est, dots: mixed pocschoolprop inquiry_narrow_log primary middle high lnage lnstu
  > dents urban pctpdfs || state: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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       =   9.93e+54
                                                        avg       =   1.13e+60
                                                        max       =          .
Model F test:       Equal FMI                   F(   8, 5.2e+62)  =      44.40
                                                Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_narrow_log	-.3443543	.0318379	-10.82	0.000	-.4067554	-.2819531
primary	.044967	.0071665	6.27	0.000	.030921	.0590131
middle	.0663983	.0105505	6.29	0.000	.0457198	.0870768
high	.0539426	.0085145	6.34	0.000	.0372546	.0706306
lnage	-.0166697	.0030288	-5.50	0.000	-.0226061	-.0107333
lnstudents	.0068405	.003336	2.05	0.040	.000302	.0133789
urban	.1084515	.0091058	11.91	0.000	.0906046	.1262985
pctpdfs	.1002114	.0603827	1.66	0.097	-.0181366	.2185594
_cons	.4483127	.0348874	12.85	0.000	.3799346	.5166908

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	.1720997	.0224811	.133226	.2223162
geodistrict: Identity sd(_cons)	.1993535	.0056151	.1886464	.2106684
sd(Residual)	.1802494	.0019457	.1764759	.1841034

```
73. * 2. academic performance
74. mi est, dots: mixed pocschoolprop readall14 mathall14 primary middle high lnage lnst
  > udents urban readlevel14 mathlevel14 || state: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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       =     0.1006
                                                Largest FMI       =     0.3333
DF adjustment:   Large sample                   DF:     min       =      43.48
                                                        avg       = 134,523.71
                                                        max       = 938,075.43
Model F test:       Equal FMI                   F(  10, 2229.1)   =     106.73
                                                Prob > F          =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	-.3425676	.0205975	-16.63	0.000	-.3829903	-.3021449
mathall14	-.04888	.0222751	-2.19	0.031	-.0930694	-.0046906
primary	.0516087	.0067639	7.63	0.000	.0383517	.0648657
middle	.0790823	.0099969	7.91	0.000	.0594887	.0986759
high	.0648965	.008295	7.82	0.000	.0486287	.0811642
lnage	-.0091191	.0029458	-3.10	0.002	-.0149007	-.0033375
lnstudents	.0233348	.0036582	6.38	0.000	.0161645	.0305051
urban	.0991666	.0085948	11.54	0.000	.0823201	.1160131
readlevel14	.0008406	.0007717	1.09	0.282	-.0007151	.0023963

mathlevel14	**-.0003758**	**.000689**	**-0.55**	**0.586**	**-.0017393**	**.0009877**
_cons	**.5003446**	**.0364288**	**13.73**	**0.000**	**.4289397**	**.5717495**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity				
sd(_cons)	**.1698052**	**.0217359**	**.132127**	**.218228**
geodistrict: Identity				
sd(_cons)	**.1887164**	**.0053632**	**.1784919**	**.1995267**
sd(Residual)	**.1683143**	**.0018291**	**.1647671**	**.1719378**

```
75. * 3. fully specified
76. mi est, dots: mixed pocschoolprop inquiry_narrow_log readall14 mathall14 primary mid
  > dle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || geodist
  > rict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations      =          5
  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      =     0.0887
                                                    Largest FMI      =     0.3372
  DF adjustment:   Large sample                     DF:     min      =      42.52
                                                            avg      = 136,457.19
                                                            max      = 1160185.83
  Model F test:       Equal FMI                     F(  12, 3745.7)  =      97.26
                                                    Prob > F         =     0.0000
```

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_narrow_log	**-.2532441**	**.0300959**	**-8.41**	**0.000**	**-.3122413**	**-.194247**
readall14	**-.3292709**	**.0208154**	**-15.82**	**0.000**	**-.3701736**	**-.2883682**
mathall14	**-.0517372**	**.0225366**	**-2.30**	**0.024**	**-.0966172**	**-.0068571**
primary	**.0515991**	**.0067166**	**7.68**	**0.000**	**.0384347**	**.0647634**
middle	**.0757384**	**.0099322**	**7.63**	**0.000**	**.0562716**	**.0952052**
high	**.0627038**	**.0082196**	**7.63**	**0.000**	**.046586**	**.0788216**
lnage	**-.0098641**	**.0029249**	**-3.37**	**0.001**	**-.0156044**	**-.0041238**
lnstudents	**.0242486**	**.0036323**	**6.68**	**0.000**	**.0171291**	**.0313681**
urban	**.1000361**	**.0085458**	**11.71**	**0.000**	**.0832859**	**.1167863**
pctpdfs	**.0972255**	**.0564954**	**1.72**	**0.085**	**-.0135101**	**.2079611**
readlevel14	**.0009108**	**.0007682**	**1.19**	**0.242**	**-.0006389**	**.0024604**
mathlevel14	**-.0004613**	**.0006806**	**-0.68**	**0.499**	**-.0018067**	**.0008841**
_cons	**.5105278**	**.0361144**	**14.14**	**0.000**	**.439741**	**.5813146**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity				
sd(_cons)	**.1682157**	**.0215693**	**.130834**	**.2162779**
geodistrict: Identity				
sd(_cons)	**.1887763**	**.0053481**	**.1785796**	**.1995552**
sd(Residual)	**.1670214**	**.0018156**	**.1635005**	**.170618**

```
77.
78.
79. *
80. * 2C. RE-RUN LINEAR MIXED MODELS USING FULL IBL DICTIONARY WITHOUT "HANDS-ON" TERM (
  > 49 TERMS)
81. *
82.
83. * PT 1:
84. * 0. controls only
85. mi est, dots: mixed inquiry_full_nohands_log primary middle high lnage lnstudents ur
  > ban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0000
                                                    Largest FMI       =     0.0000
  DF adjustment:   Large sample                     DF:     min       =          .
                                                            avg       =          .
                                                            max       =          .
  Model F test:       Equal FMI                     F(   7,     .)    =      11.23
                                                    Prob > F          =     0.0000
```

inquiry_full_nohands_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**-.0024389**	**.0037416**	**-0.65**	**0.515**	**-.0097723**	**.0048946**
middle	**-.0141357**	**.0055926**	**-2.53**	**0.011**	**-.0250971**	**-.0031744**
high	**-.011071**	**.004482**	**-2.47**	**0.014**	**-.0198556**	**-.0022864**
lnage	**-.0052127**	**.0015448**	**-3.37**	**0.001**	**-.0082404**	**-.0021851**
lnstudents	**.0093144**	**.001612**	**5.78**	**0.000**	**.006155**	**.0124739**
urban	**.0024931**	**.0029333**	**0.85**	**0.395**	**-.0032561**	**.0082423**
pctpdfs	**.1263271**	**.0302512**	**4.18**	**0.000**	**.0670358**	**.1856184**
_cons	**.0522367**	**.010993**	**4.75**	**0.000**	**.0306909**	**.0737825**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0710595**	**.00406**	**.0635314**	**.0794798**
sd(Residual)	**.1025786**	**.0009827**	**.1006705**	**.1045229**

```
86. * 1. school poverty
87. mi est, dots: mixed inquiry_full_nohands_log povertyschool primary middle high lnage
  >  lnstudents urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations       =          5
  Mixed-effects ML regression                       Number of obs     =      5,784

  Group variable: cmoname                           Number of groups  =        377
                                                    Obs per group:
                                                                  min =          1
                                                                  avg =       15.3
                                                                  max =      3,737
                                                    Average RVI       =     0.0106
                                                    Largest FMI       =     0.0867
  DF adjustment:   Large sample                     DF:     min       =     573.33
                                                            avg       = 1369712.19
                                                            max       = 9590788.54
  Model F test:       Equal FMI                     F(   8,134662.8)  =      29.73
                                                    Prob > F          =     0.0000
```

inquiry_full_nohands_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
povertyschool	**-.0005872**	**.0000484**	**-12.12**	**0.000**	**-.0006823**	**-.0004921**
primary	**-.0030583**	**.003694**	**-0.83**	**0.408**	**-.0102984**	**.0041818**
middle	**-.0121009**	**.0055218**	**-2.19**	**0.028**	**-.0229234**	**-.0012783**
high	**-.011284**	**.0044257**	**-2.55**	**0.011**	**-.0199583**	**-.0026097**
lnage	**-.0049554**	**.0015251**	**-3.25**	**0.001**	**-.0079445**	**-.0019663**
lnstudents	**.0081725**	**.0015952**	**5.12**	**0.000**	**.005046**	**.0112991**
urban	**.0100974**	**.0029672**	**3.40**	**0.001**	**.0042816**	**.0159132**
pctpdfs	**.1233773**	**.0298947**	**4.13**	**0.000**	**.0647845**	**.1819701**
_cons	**.0903842**	**.0113041**	**8.00**	**0.000**	**.0682285**	**.1125399**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0718309**	**.0040509**	**.0643143**	**.080226**
sd(Residual)	**.101084**	**.0009713**	**.0991981**	**.1030057**

```
88. * 2. school race
89. mi est, dots: mixed inquiry_full_nohands_log pocschoolprop primary middle high lnage
  >  lnstudents urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: cmoname                         Number of groups  =        377
                                                  Obs per group:
                                                               min =          1
                                                               avg =       15.3
                                                               max =      3,737
                                                  Average RVI       =     0.0000
                                                  Largest FMI       =     0.0000
  DF adjustment:   Large sample                   DF:     min       =   2.97e+63
                                                          avg       =   2.97e+63
                                                          max       =          .
  Model F test:       Equal FMI                   F(   8, 6.0e+65)  =      31.35
                                                  Prob > F          =     0.0000

------------------------------------------------------------------------------
inquiry_full_nohands_log |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Inter
> val]
-------------------------+----------------------------------------------------
         pocschoolprop |  -.0667553   .0051209   -13.04   0.000    -.0767922   -.056
> 7184
                primary |   .0022729   .0037051     0.61   0.540    -.0049889    .009
> 5346
                 middle |  -.0063251    .005544    -1.14   0.254     -.017191    .004
> 5409
                   high |    -.00603   .0044342    -1.36   0.174    -.0147208    .002
> 6608
                 lnage |  -.0071361   .0015296    -4.67   0.000     -.010134   -.004
> 1382
            lnstudents |   .0122842    .001605     7.65   0.000     .0091384    .015
> 4299
                 urban |   .0191549   .0031607     6.06   0.000     .0129601    .025
> 3496
               pctpdfs |   .1251378   .0298134     4.20   0.000     .0667047    .183
> 5709
                 _cons |   .0747614    .010984     6.81   0.000     .0532332    .096
> 2896
------------------------------------------------------------------------------

------------------------------------------------------------------------------
  Random-effects Parameters |   Estimate   Std. Err.      [95% Conf. Interval]
----------------------------+-------------------------------------------------
cmoname: Identity           |
                  sd(_cons) |   .0707661   .0040209      .0633082    .0791024
----------------------------+-------------------------------------------------
               sd(Residual) |   .1010615   .0009683      .0991814    .1029773
------------------------------------------------------------------------------

90. * 3. school district poverty
```

```
91. mi est, dots: mixed inquiry_full_nohands_log povertysd primary middle high lnage lns
  > tudents urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: cmoname                         Number of groups  =        377
                                                  Obs per group:
                                                               min =          1
                                                               avg =       15.3
                                                               max =      3,737
                                                  Average RVI       =     0.0004
                                                  Largest FMI       =     0.0040
  DF adjustment:   Large sample                   DF:     min       = 253,884.27
                                                          avg       =   1.36e+09
                                                          max       =   6.56e+09
  Model F test:       Equal FMI                   F(   8, 7.9e+07)  =      21.61
                                                  Prob > F          =     0.0000

------------------------------------------------------------------------------
  ____
inquiry_full_nohands_log |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Inter
> val]
-------------------------+----------------------------------------------------
  ____
           povertysd |  -.2017124   .0209422    -9.63   0.000    -.2427585   -.160
> 6663
             primary |  -.0028573   .0037115    -0.77   0.441    -.0101317    .004
> 4171
              middle |  -.0147328   .0055475    -2.66   0.008    -.0256058   -.003
> 8599
                high |   -.010247   .0044466    -2.30   0.021    -.0189622   -.001
> 5318
               lnage |  -.0050302   .0015325    -3.28   0.001    -.0080339   -.002
> 0265
          lnstudents |   .0096771   .0015995     6.05   0.000     .0065422     .01
> 2812
               urban |   .0131289   .0031116     4.22   0.000     .0070302    .019
> 2276
             pctpdfs |   .1242147   .0300054     4.14   0.000     .0654051    .183
> 0242
               _cons |   .0754481   .0111924     6.74   0.000     .0535115    .097
> 3847
------------------------------------------------------------------------------
  ____

------------------------------------------------------------------------------
  Random-effects Parameters |   Estimate   Std. Err.     [95% Conf. Interval]
----------------------------+-------------------------------------------------
cmoname: Identity           |
                  sd(_cons) |   .0719151   .0040447      .0644088    .0802961
----------------------------+-------------------------------------------------
               sd(Residual) |   .1016799   .0009741      .0997885    .1036071
------------------------------------------------------------------------------

92. * 4. school district race
93. mi est, dots: mixed inquiry_full_nohands_log pocsd primary middle high lnage lnstude
  > nts urban pctpdfs || cmoname: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group variable: **cmoname**

Number of groups = **377**
Obs per group:
min = **1**
avg = **15.3**
max = **3,737**
Average RVI = **0.0003**
Largest FMI = **0.0034**
DF: min = **357,483.16**
avg = **3.17e+10**
max = **1.82e+11**
F(**8**, **1.3e+08**) = **11.24**
Prob > F = **0.0000**

DF adjustment: **Large sample**

Model F test: **Equal FMI**

inquiry_full_nohands_log	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
pocsd	**-.0275439**	**.0082387**	**-3.34**	**0.001**	**-.0436915**	**-.0113964**
primary	**-.0017358**	**.0037439**	**-0.46**	**0.643**	**-.0090738**	**.0056022**
middle	**-.0128818**	**.0055999**	**-2.30**	**0.021**	**-.0238573**	**-.0019063**
high	**-.0106023**	**.0044799**	**-2.37**	**0.018**	**-.0193828**	**-.0018218**
lnage	**-.0056218**	**.0015481**	**-3.63**	**0.000**	**-.0086561**	**-.0025876**
lnstudents	**.0102252**	**.0016334**	**6.26**	**0.000**	**.0070239**	**.0134265**
urban	**.0065791**	**.0031752**	**2.07**	**0.038**	**.0003558**	**.0128025**
pctpdfs	**.1250895**	**.0302245**	**4.14**	**0.000**	**.0658505**	**.1843285**
_cons	**.0550615**	**.0110141**	**5.00**	**0.000**	**.0334744**	**.0766487**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
cmoname: Identity				
sd(_cons)	**.0709497**	**.0040605**	**.0634214**	**.0793717**
sd(Residual)	**.1024818**	**.0009819**	**.1005753**	**.1044244**

```
94.
95. * PT 2:
96. * 0. controls only
97. mi est, dots: mixed povertyschoolprop primary middle high lnage lnstudents urban ||
  > geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784
```

Group variable: **geodistrict** — Number of groups = **1,481**
Obs per group:
min = **1**
avg = **3.9**
max = **251**
Average RVI = **0.0675**
Largest FMI = **0.1351**
DF adjustment: **Large sample** — DF: min = **244.08**
avg = **3,183.61**
max = **13,397.08**
Model F test: **Equal FMI** — F(**6**, **3281.1**) = **10.99**
Prob > F = **0.0000**

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
primary	**-.0046805**	**.0095632**	**-0.49**	**0.625**	**-.0234571**	**.0140962**
middle	**.0323977**	**.0140638**	**2.30**	**0.021**	**.0048021**	**.0599933**
high	**-.0094542**	**.011426**	**-0.83**	**0.408**	**-.0319004**	**.0129919**
lnage	**.0014568**	**.0040016**	**0.36**	**0.716**	**-.006399**	**.0093127**
lnstudents	**-.0169675**	**.0044046**	**-3.85**	**0.000**	**-.0256434**	**-.0082916**
urban	**.0695119**	**.0108689**	**6.40**	**0.000**	**.0482066**	**.0908172**
_cons	**.5703494**	**.026164**	**21.80**	**0.000**	**.518934**	**.6217649**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	**.1900546**	**.0064028**	**.1779097**	**.2030286**
sd(Residual)	**.2390346**	**.0026034**	**.2339817**	**.2441967**

98. * 1. IBL
99. mi est, dots: mixed povertyschoolprop inquiry_full_nohands_log primary middle high l
> nage lnstudents urban pctpdfs || geodistrict: ,

Imputations (**5**):
..... done

Multiple-imputation estimates — Imputations = **5**
Mixed-effects ML regression — Number of obs = **5,784**

Group variable: **geodistrict** — Number of groups = **1,481**
Obs per group:
min = **1**
avg = **3.9**
max = **251**
Average RVI = **0.0800**
Largest FMI = **0.1871**
DF adjustment: **Large sample** — DF: min = **130.95**
avg = **2,327.46**
max = **9,982.52**
Model F test: **Equal FMI** — F(**8**, **3441.3**) = **19.06**
Prob > F = **0.0000**

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_nohands_log	**-.3023831**	**.0324222**	**-9.33**	**0.000**	**-.3660181**	**-.2387481**
primary	**-.0043851**	**.0094964**	**-0.46**	**0.644**	**-.0230309**	**.0142608**
middle	**.0293818**	**.0140112**	**2.10**	**0.036**	**.0018848**	**.0568789**
high	**-.0115834**	**.0113512**	**-1.02**	**0.308**	**-.0338834**	**.0107167**
lnage	**.0003144**	**.0039845**	**0.08**	**0.937**	**-.0075094**	**.0081382**

> 1383
> 9965
> 2667
> 0293
> 3441

lnstudents	-.0136706	.0044013	-3.11	0.002	-.0223447	-.004
urban	.0721764	.0107591	6.71	0.000	.0510861	.093
pctpdfs	.0672208	.0838159	0.80	0.424	-.0985877	.233
_cons	.5903049	.0259788	22.72	0.000	.5392657	.641

____

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity				
sd(_cons)	.1857925	.0063494	.1737541	.1986649
sd(Residual)	.2376752	.002576	.2326763	.2427816

```
100 * 2. academic performance
101 mi est, dots: mixed povertyschoolprop readall14 mathall14 primary middle high lnage
  > lnstudents urban readlevel14 mathlevel14 || geodistrict: ,
```

Imputations (**5**):
..... done

Multiple-imputation estimates — Imputations = **5**
Mixed-effects ML regression — Number of obs = **5,784**

Group variable: **geodistrict** — Number of groups = **1,481**
Obs per group:
min = **1**
avg = **3.9**
max = **251**
Average RVI = **0.2201**
Largest FMI = **0.3683**
DF adjustment: **Large sample** — DF: min = **35.85**
avg = **866.14**
max = **6,093.00**
Model F test: **Equal FMI** — F(**10**, **789.4**) = **90.63**
Prob > F = **0.0000**

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	-.4410165	.0284298	-15.51	0.000	-.4976251	-.3844078
mathall14	-.0671554	.0302048	-2.22	0.033	-.1284005	-.0059102
primary	.0029805	.0088278	0.34	0.736	-.0143448	.0203057
middle	.0395737	.0130393	3.03	0.002	.0139981	.0651492
high	.0036065	.0119336	0.30	0.764	-.0202931	.0275062
lnage	.0083949	.0039555	2.12	0.036	.0005555	.0162344
lnstudents	.0002029	.0050872	0.04	0.968	-.0099364	.0103421
urban	.0638187	.010223	6.24	0.000	.0437565	.0838809
readlevel14	-.0006173	.0008473	-0.73	0.467	-.0022811	.0010464
mathlevel14	.0002824	.0008299	0.34	0.734	-.0013483	.0019132
_cons	.7098465	.0346865	20.46	0.000	.6394886	.7802045

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity				
sd(_cons)	.1736084	.00578	.1626394	.1853172
sd(Residual)	.22001	.0025146	.2151027	.2250292

```
102 * 3. fully specified
103 mi est, dots: mixed povertyschoolprop inquiry_full_nohands_log readall14 mathall14 p
  > rimary middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || geodist
  > rict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  Mixed-effects ML regression                     Number of obs     =      5,784

  Group variable: geodistrict                     Number of groups  =      1,481
                                                  Obs per group:
                                                               min =          1
                                                               avg =        3.9
                                                               max =        251
                                                  Average RVI       =     0.2133
                                                  Largest FMI       =     0.3688
  DF adjustment:   Large sample                   DF:     min       =      35.75
                                                          avg       =     773.11
                                                          max       =   6,266.40
  Model F test:       Equal FMI                   F(  12, 1059.9)   =      80.53
                                                  Prob > F          =     0.0000
```

povertyschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_nohands_log	-.2089887	.0311669	-6.71	0.000	-.2703794	-.1475979
readall14	-.4236561	.0285277	-14.85	0.000	-.4804902	-.366822
mathall14	-.0746019	.0301604	-2.47	0.018	-.1357849	-.0134189
primary	.0032621	.0088054	0.37	0.711	-.0140207	.0205448
middle	.0371806	.013017	2.86	0.004	.0116469	.0627142
high	.0020569	.0118746	0.17	0.863	-.0217166	.0258304
lnage	.0073511	.0039474	1.86	0.065	-.0004741	.0151763
lnstudents	.001778	.0051173	0.35	0.729	-.008442	.0119981
urban	.0659002	.0101599	6.49	0.000	.0459613	.085839
pctpdfs	.0545365	.0789148	0.69	0.491	-.1021639	.2112368
readlevel14	-.0005124	.0008481	-0.60	0.546	-.0021784	.0011537
mathlevel14	.0001262	.0008232	0.15	0.878	-.0014905	.0017429
_cons	.722549	.0343538	21.03	0.000	.6530075	.7920904

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
geodistrict: Identity sd(_cons)	.1707574	.0057463	.1598562	.182402
sd(Residual)	.2194458	.0024837	.2146051	.2243957

```
104
105 * PT 3:
106 * 0. controls only
107 mi est, dots: mixed pocschoolprop primary middle high lnage lnstudents urban || stat
  > e: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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       =   9.88e+54
                                                          avg       =   2.10e+60
                                                          max       =          .
  Model F test:       Equal FMI                   F(   6, 2.1e+62)  =      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**

```
108 * 1. IBL
109 mi est, dots: mixed pocschoolprop inquiry_full_nohands_log primary middle high lnage
  >  lnstudents urban pctpdfs || state: || geodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                   Imputations       =          5
  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**

Model F test: **Equal FMI**

Average RVI	=	**0.0000**	
Largest FMI	=	**0.0000**	
DF: min	=	**9.92e+54**	
avg	=	**1.23e+59**	
max	=	**.**	
F(8, .)	=	**45.43**	
Prob > F	=	**0.0000**	

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
inquiry_full_nohands_log	**-.2756086**	**.0246277**	**-11.19**	**0.000**	**-.323878**	**-.227**
primary	**.0447094**	**.0071605**	**6.24**	**0.000**	**.0306752**	**.058**
middle	**.0671825**	**.010539**	**6.37**	**0.000**	**.0465265**	**.087**
high	**.0546102**	**.0085057**	**6.42**	**0.000**	**.0379393**	**.071**
lnage	**-.0168241**	**.0030266**	**-5.56**	**0.000**	**-.0227561**	**-.01**
lnstudents	**.0076859**	**.0033383**	**2.30**	**0.021**	**.0011429**	**.01**
urban	**.1096553**	**.009103**	**12.05**	**0.000**	**.0918136**	**.127**
pctpdfs	**.1034683**	**.0603452**	**1.71**	**0.086**	**-.0148062**	**.221**
_cons	**.4525439**	**.0349291**	**12.96**	**0.000**	**.384084**	**.521**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1723933**	**.0225103**	**.1334672**	**.2226724**
geodistrict: Identity sd(_cons)	**.1994486**	**.0056063**	**.1887577**	**.2107451**
sd(Residual)	**.1800772**	**.0019433**	**.1763085**	**.1839265**

```
110 * 2. academic performance
111 mi est, dots: mixed pocschoolprop readall14 mathall14 primary middle high lnage lnst
  > udents urban readlevel14 mathlevel14 || state: || geodistrict: ,

  Imputations (5):
    ..... done
```

Multiple-imputation estimates		Imputations	= **5**
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	= **0.1006**
		Largest FMI	= **0.3333**
DF adjustment:	**Large sample**	DF: min	= **43.48**
		avg	= **134,523.71**
		max	= **938,075.43**
Model F test:	**Equal FMI**	F(**10**, **2229.1**)	= **106.73**
		Prob > F	= **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
readall14	**-.3425676**	**.0205975**	**-16.63**	**0.000**	**-.3829903**	**-.3021449**
mathall14	**-.04888**	**.0222751**	**-2.19**	**0.031**	**-.0930694**	**-.0046906**
primary	**.0516087**	**.0067639**	**7.63**	**0.000**	**.0383517**	**.0648657**
middle	**.0790823**	**.0099969**	**7.91**	**0.000**	**.0594887**	**.0986759**
high	**.0648965**	**.008295**	**7.82**	**0.000**	**.0486287**	**.0811642**
lnage	**-.0091191**	**.0029458**	**-3.10**	**0.002**	**-.0149007**	**-.0033375**
lnstudents	**.0233348**	**.0036582**	**6.38**	**0.000**	**.0161645**	**.0305051**
urban	**.0991666**	**.0085948**	**11.54**	**0.000**	**.0823201**	**.1160131**
readlevel14	**.0008406**	**.0007717**	**1.09**	**0.282**	**-.0007151**	**.0023963**
mathlevel14	**-.0003758**	**.000689**	**-0.55**	**0.586**	**-.0017393**	**.0009877**
_cons	**.5003446**	**.0364288**	**13.73**	**0.000**	**.4289397**	**.5717495**

Random-effects Parameters	Estimate	Std. Err.	[95% Conf.	Interval]
state: Identity sd(_cons)	**.1698052**	**.0217359**	**.132127**	**.218228**
geodistrict: Identity sd(_cons)	**.1887164**	**.0053632**	**.1784919**	**.1995267**
sd(Residual)	**.1683143**	**.0018291**	**.1647671**	**.1719378**

```
112 * 3. fully specified
113 mi est, dots: mixed pocschoolprop inquiry_full_nohands_log readall14 mathall14 prima
  > ry middle high lnage lnstudents urban pctpdfs readlevel14 mathlevel14 || state: || g
  > eodistrict: ,

  Imputations (5):
    ..... done

  Multiple-imputation estimates                     Imputations      =          5
  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	= **0.0908**
		Largest FMI	= **0.3546**
DF adjustment:	**Large sample**	DF: min	= **38.58**
		avg	= **153,241.77**
		max	= **1155137.20**
Model F test:	**Equal FMI**	F(**12**, **3594.9**)	= **97.21**
		Prob > F	= **0.0000**

pocschoolprop	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
inquiry_full_nohands_log	-.1993349	.0231938	-8.59	0.000	-.2447959 -.1538738
readall14	-.3257475	.0207229	-15.72	0.000	-.3664455 -.2850496
mathall14	-.0546244	.0223331	-2.45	0.016	-.0990127 -.0102362
primary	.0514226	.0067132	7.66	0.000	.038265 .0645802
middle	.0761765	.0099273	7.67	0.000	.0567194 .0956336
high	.0632789	.0082197	7.70	0.000	.0471606 .0793973
lnage	-.0100118	.0029237	-3.42	0.001	-.0157496 -.0042739
lnstudents	.0245838	.0036333	6.77	0.000	.0174623 .0317053
urban	.1009081	.0085471	11.81	0.000	.0841553 .1176609
pctpdfs	.0988951	.0565036	1.75	0.080	-.0118571 .2096473
readlevel14	.0009	.0007765	1.16	0.254	-.0006711 .0024712
mathlevel14	-.000489	.0006886	-0.71	0.479	-.0018533 .0008753
_cons	.5145748	.0361904	14.22	0.000	.443638 .5855116

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]
state: Identity sd(_cons)	.1684852	.021597	.1310541 .2166073
geodistrict: Identity sd(_cons)	.1888995	.0053439	.1787106 .1996694
sd(Residual)	.1669586	.0018144	.1634401 .1705529

```
114
115 log close
       name:  <unnamed>
        log:  /hdir/0/jhaber/Projects/charter_data/sorting-schools-2019/logs/robust_nar
> rowibl_mi5_linear_101019.smcl
  log type:  smcl
 closed on:  18 Oct 2019, 13:07:01
```