. \* STATA Model 1a: 2-Level Empty Means, Random Intercept for Math Outcome

. xtmixed math , || schoolID: , ///

> variance ml covariance(un) residuals(independent),

Note: single-variable random-effects specification; covariance structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54895.45

Iteration 1: log likelihood = -54895.45

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(0) = .

Log likelihood = -54895.45 Prob > chi2 = .

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_cons | 47.75613 .7191927 66.40 0.000 46.34654 49.16572

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 44.93635 7.039956 33.05554 61.08735

-----------------------------+------------------------------------------------

var(Residual) | 253.1756 3.141541 247.0926 259.4084

------------------------------------------------------------------------------

LR test vs. linear regression: chibar2(01) = 1857.08 Prob >= chibar2 = 0.0000

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54895.45 3 109796.9 109804.5

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* STATA Model 1b: 2-Level Empty Means, Random Intercept for Binary Gender Predictor

. xtmelogit boyvsgirl, || schoolID: , variance covariance(unstructured) intpoints(7),

Note: single-variable random-effects specification; covariance structure set to identity

Refining starting values:

Iteration 0: log likelihood = -9171.9793 (not concave)

Iteration 1: log likelihood = -9069.7172

Iteration 2: log likelihood = -9069.7086

Performing gradient-based optimization:

Iteration 0: log likelihood = -9069.7086

Iteration 1: log likelihood = -9067.6509

Iteration 2: log likelihood = -9067.5454

Iteration 3: log likelihood = -9067.5452

Mixed-effects logistic regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Integration points = 7 Wald chi2(0) = .

Log likelihood = -9067.5452 Prob > chi2 = .

------------------------------------------------------------------------------

boyvsgirl | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_cons | -.0061397 .018486 -0.33 0.740 -.0423716 .0300923

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | .0014424 .0032094 .0000184 .1129878

------------------------------------------------------------------------------

LR test vs. logistic regression: chibar2(01) = 0.24 Prob>=chibar2 = 0.3134

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -9067.545 2 18139.09 18144.18

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* STATA Model 1c: 2-Level Empty Means, Random Intercept for Binary Lunch Predictor

. xtmelogit frlunch, || schoolID: , variance covariance(unstructured) intpoints(7),

Note: single-variable random-effects specification; covariance structure set to identity

Refining starting values:

Iteration 0: log likelihood = -6599.4741

Iteration 1: log likelihood = -6586.9039

Iteration 2: log likelihood = -6586.3492

Performing gradient-based optimization:

Iteration 0: log likelihood = -6586.3492

Iteration 1: log likelihood = -6586.2153

Iteration 2: log likelihood = -6586.2151

Mixed-effects logistic regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Integration points = 7 Wald chi2(0) = .

Log likelihood = -6586.2151 Prob > chi2 = .

------------------------------------------------------------------------------

frlunch | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_cons | -1.172115 .1493727 -7.85 0.000 -1.46488 -.8793498

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 1.954486 .3315076 1.401707 2.725261

------------------------------------------------------------------------------

LR test vs. logistic regression: chibar2(01) = 2973.46 Prob>=chibar2 = 0.0000

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -6586.215 2 13176.43 13181.52

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* STATA Model 2a:Predicting Math with a Fixed Effect of Student Gender

. xtmixed math c.boyvsgirl , || schoolID: , variance ml covariance(un) residuals(independent),

Note: single-variable random-effects specification; covariance structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54890.854

Iteration 1: log likelihood = -54890.854

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(1) = 9.20

Log likelihood = -54890.854 Prob > chi2 = 0.0024

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

boyvsgirl | .846236 .2790596 3.03 0.002 .2992893 1.393183

\_cons | 47.32998 .7319517 64.66 0.000 45.89538 48.76458

------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 44.82269 7.021737 32.97252 60.93174

-----------------------------+------------------------------------------------

var(Residual) | 253.0009 3.139368 246.9221 259.2294

------------------------------------------------------------------------------

LR test vs. linear regression: chibar2(01) = 1857.50 Prob >= chibar2 = 0.0000

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54890.85 4 109789.7 109799.9

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* STATA Model 2b: Adding Fixed Effect of School Proportion Girls

. xtmixed math c.boyvsgirl c.SMboyvsgirl50, || schoolID: , ///

> variance ml covariance(un) residuals(independent),

Note: single-variable random-effects specification; covariance structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54889.358

Iteration 1: log likelihood = -54889.358

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(2) = 12.23

Log likelihood = -54889.358 Prob > chi2 = 0.0022

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .8351916 .2791294 2.99 0.003 .2881081 1.382275

SMboyvsgirl50 | 20.83233 11.96794 1.74 0.082 -2.624391 44.28906

\_cons | 47.26049 .7233362 65.34 0.000 45.84278 48.67821

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 43.49513 6.802317 32.01245 59.09656

-----------------------------+------------------------------------------------

var(Residual) | 252.9934 3.139188 246.9149 259.2215

------------------------------------------------------------------------------

LR test vs. linear regression: chibar2(01) = 1855.23 Prob >= chibar2 = 0.0000

. estat ic, n(94),

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54889.36 5 109788.7 109801.4

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

. predict boypred,

(option xb assumed)

. estimates store FixGender,

. lincom 1\*boyvsgirl + 1\*SMboyvsgirl50 // gender between-school effect

( 1) [math]boyvsgirl + [math]SMboyvsgirl50 = 0

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

(1) | 21.66752 11.96468 1.81 0.070 -1.782819 45.11787

------------------------------------------------------------------------------

. corr math boypred

(obs=13082)

| math boypred

-------------+------------------

math | 1.0000

boypred | 0.0302 1.0000

.

. \* STATA Model 2c: Adding Random Effect of Student Gender

. xtmixed math c.boyvsgirl c.SMboyvsgirl50, || schoolID: boyvsgirl, ///

> variance ml covariance(un) residuals(independent),

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54889.555

Iteration 1: log likelihood = -54889.042

Iteration 2: log likelihood = -54889.041

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(2) = 11.27

Log likelihood = -54889.041 Prob > chi2 = 0.0036

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .8553633 .3005807 2.85 0.004 .2662359 1.444491

SMboyvsgirl50 | 20.54121 11.96689 1.72 0.086 -2.913466 43.99589

\_cons | 47.25209 .7289891 64.82 0.000 45.8233 48.68089

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Unstructured |

var(boyvsg~l) | .6213276 .8952177 .036889 10.46512

var(\_cons) | 44.10449 7.164917 32.07764 60.64057

cov(boyvsg~l,\_cons) | -.7560154 2.11375 -4.898889 3.386858

-----------------------------+------------------------------------------------

var(Residual) | 252.8379 3.143168 246.7519 259.0741

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 1855.86 Prob > chi2 = 0.0000

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

. estat recovariance, level(schoolID),

Random-effects covariance matrix for level schoolID

| boyvsgirl \_cons

-------------+----------------------

boyvsgirl | .6213276

\_cons | -.7560154 44.10449

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54889.04 7 109792.1 109809.9

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

. estimates store RandGender

. lrtest RandGender FixGender

Likelihood-ratio test LR chi2(2) = 0.63

(Assumption: FixGender nested in RandGender) Prob > chi2 = 0.7287

Note: The reported degrees of freedom assumes the null hypothesis is not on the boundary of the parameter space. If this is not true, then the reported test is conservative.

.

. \* STATA Model 3a: Adding Fixed Effect of Student Free/Reduced Lunch

. xtmixed math c.boyvsgirl c.SMboyvsgirl50 c.frlunch, || schoolID: , ///

> variance ml covariance(un) residuals(independent),

Note: single-variable random-effects specification; covariance structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54501.727

Iteration 1: log likelihood = -54501.727

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(3) = 822.91

Log likelihood = -54501.727 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .8554911 .271379 3.15 0.002 .3235982 1.387384

SMboyvsgirl50 | 15.07964 9.567117 1.58 0.115 -3.671565 33.83084

frlunch | -9.42982 .3316378 -28.43 0.000 -10.07982 -8.779821

\_cons | 50.13249 .5867957 85.43 0.000 48.9824 51.28259

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 26.16525 4.31097 18.94443 36.13835

-----------------------------+------------------------------------------------

var(Residual) | 239.1374 2.967483 233.3914 245.0248

------------------------------------------------------------------------------

LR test vs. linear regression: chibar2(01) = 891.04 Prob >= chibar2 = 0.0000

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54501.73 6 109015.5 109030.7

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* STATA Model 3b: Adding Fixed Effect of School Proportion Free/Reduced Lunch

. xtmixed math c.boyvsgirl c.SMboyvsgirl50 c.frlunch c.SMfrlunch30, || schoolID: , ///

> variance ml covariance(un) residuals(independent),

Note: single-variable random-effects specification; covariance structure set to identity

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54477.068

Iteration 1: log likelihood = -54477.068

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(4) = 938.89

Log likelihood = -54477.068 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .854944 .2714213 3.15 0.002 .3229681 1.38692

SMboyvsgirl50 | 5.683526 7.408788 0.77 0.443 -8.837433 20.20448

frlunch | -9.175675 .3342866 -27.45 0.000 -9.830864 -8.520485

SMfrlunch30 | -16.59827 2.01439 -8.24 0.000 -20.5464 -12.65013

\_cons | 50.15734 .454188 110.43 0.000 49.26715 51.04753

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Identity |

var(\_cons) | 13.37891 2.522071 9.246133 19.35894

-----------------------------+------------------------------------------------

var(Residual) | 239.2119 2.96925 233.4625 245.1029

------------------------------------------------------------------------------

LR test vs. linear regression: chibar2(01) = 354.31 Prob >= chibar2 = 0.0000

. estat ic, n(94),

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54477.07 7 108968.1 108985.9

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

. predict lunchpred,

(option xb assumed)

. estimates store FixFRLunch,

. lincom 1\*frlunch + 1\*SMfrlunch30 // FR lunch between-school effect

( 1) [math]frlunch + [math]SMfrlunch30 = 0

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

(1) | -25.77394 1.98646 -12.97 0.000 -29.66733 -21.88055

------------------------------------------------------------------------------

. corr math lunchpred

(obs=13082)

| math lunchp~d

-------------+------------------

math | 1.0000

lunchpred | 0.4045 1.0000

.

. \* STATA Model 3c: Adding Random Effect of Student Free/Reduced Lunch

. xtmixed math c.boyvsgirl c. SMboyvsgirl50 c.frlunch c. SMfrlunch30, || schoolID: frlunch, ///

> variance ml covariance(un) residuals(independent),

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54432.945

Iteration 1: log likelihood = -54432.941

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(4) = 410.98

Log likelihood = -54432.941 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .8961583 .270336 3.31 0.001 .3663095 1.426007

SMboyvsgirl50 | 4.32952 7.240359 0.60 0.550 -9.861323 18.52036

frlunch | -8.455127 .5621918 -15.04 0.000 -9.557002 -7.353251

SMfrlunch30 | -16.85101 1.946333 -8.66 0.000 -20.66575 -13.03627

\_cons | 49.79099 .5310163 93.77 0.000 48.75021 50.83176

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Unstructured |

var(frlunch) | 12.748 3.326735 7.64384 21.26047

var(\_cons) | 19.76018 3.714126 13.67096 28.56162

cov(frlunch,\_cons) | -11.78568 3.149823 -17.95922 -5.612136

-----------------------------+------------------------------------------------

var(Residual) | 236.6261 2.944215 230.9254 242.4676

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 442.56 Prob > chi2 = 0.0000

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

. estat recovariance, level(schoolID),

Random-effects covariance matrix for level schoolID

| frlunch \_cons

-------------+----------------------

frlunch | 12.748

\_cons | -11.78568 19.76018

. estat ic, n(94),

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54432.94 9 108883.9 108906.8

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

. estimates store RandFRLunch

. lrtest RandFRLunch FixFRLunch

Likelihood-ratio test LR chi2(2) = 88.25

(Assumption: FixFRLunch nested in RandFRLunch) Prob > chi2 = 0.0000

Note: The reported degrees of freedom assumes the null hypothesis is not on the boundary of the parameter space. If this is not true, then the reported test is conservative.

.

. \* STATA Model 3d: Adding Cross-Level Interaction of Student by School Free/Reduced Lunch

. xtmixed math c.boyvsgirl c.SMboyvsgirl50 c.frlunch c.SMfrlunch30 c.frlunch#c.SMfrlunch30, ///

> || schoolID: frlunch, variance ml covariance(un) residuals(independent),

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54431.656

Iteration 1: log likelihood = -54431.652

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(5) = 424.55

Log likelihood = -54431.652 Prob > chi2 = 0.0000

-----------------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

------------------------+----------------------------------------------------------------

boyvsgirl | .8996581 .2703283 3.33 0.001 .3698243 1.429492

SMboyvsgirl50 | 4.89519 7.286683 0.67 0.502 -9.386447 19.17683

frlunch | -8.704453 .5680991 -15.32 0.000 -9.817906 -7.590999

SMfrlunch30 | -19.27158 2.476893 -7.78 0.000 -24.1262 -14.41696

|

c.frlunch#c.SMfrlunch30 | 4.317237 2.639573 1.64 0.102 -.8562302 9.490704

|

\_cons | 49.74962 .5301529 93.84 0.000 48.71054 50.7887

-----------------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Unstructured |

var(frlunch) | 11.80551 3.170924 6.973556 19.98549

var(\_cons) | 19.60825 3.660946 13.59927 28.27235

cov(frlunch,\_cons) | -11.17733 3.064634 -17.1839 -5.170755

-----------------------------+------------------------------------------------

var(Residual) | 236.6114 2.943858 230.9113 242.4522

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 443.75 Prob > chi2 = 0.0000

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

. estat ic, n(94)

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54431.65 10 108883.3 108908.7

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

.

. \* interaction terms for for lincom statements

. gen lunchcross = SMfrlunch30\*frlunch

. gen SMfrlunch30sq = SMfrlunch30\*SMfrlunch30

.

. \* STATA Model 3e: Adding Cross-Level Interaction of Student by School Free/Reduced Lunch

. xtmixed math c.boyvsgirl c.SMboyvsgirl50 c.frlunch c.SMfrlunch30 c.lunchcross ///

> c.SMfrlunch30sq, || schoolID: frlunch, variance ml covariance(un) residuals(independent),

Performing EM optimization:

Performing gradient-based optimization:

Iteration 0: log likelihood = -54430.535

Iteration 1: log likelihood = -54430.531

Computing standard errors:

Mixed-effects ML regression Number of obs = 13082

Group variable: schoolID Number of groups = 94

Obs per group: min = 31

avg = 139.2

max = 515

Wald chi2(6) = 428.33

Log likelihood = -54430.531 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

boyvsgirl | .9016436 .2703336 3.34 0.001 .3717995 1.431488

SMboyvsgirl50 | 3.09736 7.306697 0.42 0.672 -11.2235 17.41822

frlunch | -8.841586 .5776762 -15.31 0.000 -9.973811 -7.709362

SMfrlunch30 | -17.93514 2.592864 -6.92 0.000 -23.01706 -12.85322

lunchcross | 5.518239 2.768752 1.99 0.046 .0915854 10.94489

SMfrlunch30sq | -13.55842 8.942234 -1.52 0.129 -31.08488 3.968032

\_cons | 50.36274 .6598407 76.33 0.000 49.06948 51.65601

-------------------------------------------------------------------------------

------------------------------------------------------------------------------

Random-effects Parameters | Estimate Std. Err. [95% Conf. Interval]

-----------------------------+------------------------------------------------

schoolID: Unstructured |

var(frlunch) | 11.86724 3.192151 7.00465 20.10542

var(\_cons) | 18.85931 3.552277 13.03756 27.28069

cov(frlunch,\_cons) | -10.86401 3.022942 -16.78886 -4.93915

-----------------------------+------------------------------------------------

var(Residual) | 236.6078 2.943836 230.9078 242.4486

------------------------------------------------------------------------------

LR test vs. linear regression: chi2(3) = 428.16 Prob > chi2 = 0.0000

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

. estat ic, n(94),

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

. | 94 . -54430.53 11 108883.1 108911

-----------------------------------------------------------------------------

Note: N=94 used in calculating BIC

. predict totalpred,

(option xb assumed)

. lincom 1\*frlunch + 1\*SMfrlunch30 // FR lunch between-school main effect

( 1) [math]frlunch + [math]SMfrlunch30 = 0

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

(1) | -26.77672 2.601234 -10.29 0.000 -31.87505 -21.6784

------------------------------------------------------------------------------

. lincom 1\*lunchcross + 1\*SMfrlunch30sq // FR lunch between-school interaction

( 1) [math]lunchcross + [math]SMfrlunch30sq = 0

------------------------------------------------------------------------------

math | Coef. Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

(1) | -8.040185 8.548173 -0.94 0.347 -24.7943 8.713925

------------------------------------------------------------------------------

. corr math totalpred

(obs=13082)

| math totalp~d

-------------+------------------

math | 1.0000

totalpred | 0.4059 1.0000

.

end of do-file

.