```
#delimit ;
set linesize 180;
*-------------------------------------------------------*;
* Suspension and test scores                            *
*  Fixed effect models to estimate effect of OSS        *
*   on EOG test scores                                  *
*  Use z-scored (state-by-year-by-grade) EOG scores     *
*   on school- and student-level                        *
*                                                       *
*                                                       *
* Pgms:        reg01                                    *
* Orig data:   STUDTA/stuoss                            *
*              STUDTA/eog                               *
* Output:      reg01.tbl -> reg01.xlsx (ext)            *
*                                                       *
* LZhu 25feb                                            *
*-------------------------------------------------------*;
global STUDTA "/read_write/data/student";
global SCHDTA "/read_write/data/school";

di "$S_TIME $S_DATE";

*=======================================================*;
* 1. Set up data
*=======================================================*;
/*
    clear;

    * CREATE SCHOOl-LEVEL DATA;
    * load student data collapse to school-by-year level and merge
eog;
    local STUVARS schyear mastid grade schoolid oss eds black hisp
white male;
    use `STUVARS' using $STUDTA/stuoss, clear;

    * create tmp dta file with school size vars;
    preserve;
    collapse (count) schpop=oss, by(schyear schoolid);
    gen schsmall = schpop                <= 196;
    gen schmid   = schpop > 196 & schpop <= 576;
    gen schlarge = schpop > 576                ;
    label var schpop "School population";
    label var schsmall "Small school (<=25th %ile)";
    label var schmid   "Mid-size school (25-75th %ile)";
    label var schlarge "Large school (> 75th %ile)";
    save tmpdta/reg01_schpop, replace;
    restore;

    * Note: eog data doesn't have schools, so need to do this merge
before getting
```

```
    *       school-level means of EOG data;
    merge 1:1 schyear mastid using $STUDTA/eog, nogen;

    * get schyear*school*grade-level score variance to merge with
schyear*school*grade-level means later;
    preserve;
    collapse (sd) rd_score_sd = rd_score
                  ma_score_sd = ma_score
                  rd_z_sd = rd_z
                  ma_z_sd = ma_z
                  , by(schyear schoolid grade);
    gen rd_score_var = rd_score_sd^2;
    gen ma_score_var = ma_score_sd^2;
    gen rd_z_var = rd_z_sd^2;
    gen ma_z_var = ma_z_sd^2;
    label var rd_score_var "Rd score variance (schyr-sch-gr)";
    label var ma_score_var "Ma score variance (schyr-sch-gr)";
    label var rd_z_var     "Rd z-score variance (schyr-sch-gr)";
    label var ma_z_var     "Ma z-score variance (schyr-sch-gr)";
    drop *_sd;
    save tmpdta/reg01_eogvar, replace;
    restore;

    * collapse to schyear*school*grade-level, keeping only necessary
vars;
    preserve;
    collapse (mean) rd_score_mean = rd_score
                    ma_score_mean = ma_score
                    rd_z_mean = rd_z
                    ma_z_mean = ma_z
                    oss_rate = oss
                    eds_rate = eds
                    bl_pct = black
                    hi_pct = hisp
                    wh_pct = white
                    , by(schyear schoolid grade);
    * create school-level z-scores;
    label var rd_score_mean "Mean rd score (schyr-sch-gr)";
    label var ma_score_mean "Mean ma score (schyr-sch-gr)";
    label var rd_z_mean     "Mean rd z-score (schyr-sch-gr)";
    label var ma_z_mean     "Mean ma z-score (schyr-sch-gr)";
    label var oss_rate      "OSS rate";
    label var eds_rate      "EDS rate";
    label var bl_pct        "% Black";
    label var hi_pct        "% Hispanic";
    label var wh_pct        "% White";

    drop if missing(schoolid);

    * merge score variance data into school-level master data;
```

```
    merge 1:1 schyear schoolid grade using tmpdta/reg01_eogvar;
    keep if _merge==3;
    drop _merge;

    * save before defining desirable panel to merge student data with
full school data below;
    save tmpdta/reg01_scheogtmp, replace;

    * define desirable panel of schools: see before and after 2014;
    gen flagpre2014  = schyear <  14;
    gen flagpost2014 = schyear >= 14;
    bysort schoolid (schyear): egen schpre2014  = max(flagpre2014);
    bysort schoolid (schyear): egen schpost2014 = max(flagpost2014);
    gen schinpanel = schpre2014 & schpost2014;
    label var schinpanel "(1)School in panel";
    * drop if not in panel;
    keep if schinpanel;
    drop *pre2014 *post2014 schinpanel;

    * create schyear and grade dummies and oss_rate interactions;
    forvalues G = 6/8 {;
        gen gr`G' = grade == `G';
        gen gr`G'_oss_rate = gr`G' * oss_rate;
        label var gr`G' "(1)Grade `G'";
        label var gr`G'_oss_rate "gr`G' * oss_rate";
    };
    forvalues Y = 2008/2019 {;
        gen yr`Y' = schyear == `Y' - 2000;
        gen yr`Y'_oss_rate = yr`Y' * oss_rate;
        label var yr`Y' "(1)`Y'";
        label var yr`Y'_oss_rate "yr`Y' * oss_rate";
        forvalues G = 6/8 {;
            gen yr`Y'_gr`G' = yr`Y' * gr`G';
            gen yr`Y'_gr`G'_oss_rate = yr`Y'_gr`G' * oss_rate;
            label var yr`Y'_gr`G' "yr`Y' * gr`G'";
            label var yr`Y'_gr`G'_oss_rate "yr`Y' * gr`G' * oss_rate";
        };
    };

    * create pre2014 dummy and oss_rate interaction;
    gen pre2014 = schyear < 14;
    gen pre2014_oss_rate = pre2014 * oss_rate;
    label var pre2014_oss_rate "pre2014 * oss_rate";

    * get locale, school size, and titlei data by merging;
    merge m:1 schyear schoolid using $SCHDTA/schoss, keepus(locale
city town rural titlei);
    drop if _merge == 2;
    drop _merge;
    merge m:1 schyear schoolid using tmpdta/reg01_schpop;
```

```
    drop if _merge == 2;
    drop _merge;

    * fill in titlei info for post-2017 data (using >=35% eds rate as
a proxy);
    * this is not the precise definition under Title I, but it is
close;
    * Schools are Title I if they have eds rate as high as LEA eds
rate OR;
    * (with LEA discretion) have eds_rate higher than 35%;
    replace titlei = eds_rate >= 0.35 if schyear > 17;

    * focus on middle school suspensions;
    keep if grade >= 6 & grade <= 8;

    drop if schyear < 8;
    compress;
    sort schyear schoolid;

    summ;
    save tmpdta/reg01_scheog, replace;

    * CREATE STUDENT-LEVEL DATA;
    restore;
    * define potentially desirable panel (student had score before and
after 2014);
    * keep grade 3-8 here to have a good # of observations per student
unit;
    keep if grade >= 3 & grade <= 8;
    gen flagrdpre2014  = (schyear <  14 & !missing(rd_score));
    gen flagrdpost2014 = (schyear >= 14 & !missing(rd_score));
    gen flagmapre2014  = (schyear <  14 & !missing(ma_score));
    gen flagmapost2014 = (schyear >= 14 & !missing(ma_score));
    bysort mastid (schyear): egen rdpre2014  = max(flagrdpre2014);
    bysort mastid (schyear): egen rdpost2014 = max(flagrdpost2014);
    bysort mastid (schyear): egen mapre2014  = max(flagmapre2014);
    bysort mastid (schyear): egen mapost2014 = max(flagmapost2014);
    gen rdinpanel = rdpre2014 & rdpost2014;
    gen mainpanel = mapre2014 & mapost2014;
    label var rdinpanel "(1)Rd score in panel";
    label var mainpanel "(1)Ma score in panel";
    * drop if not in either panel;
    keep if rdinpanel | mainpanel;
    drop *pre2014 *post2014;

    * get school-level means from above dta. don't need score means/
var;
    merge m:1 schoolid schyear grade using tmpdta/reg01_scheogtmp,
nogen;
    drop *_z_mean *_score_mean *_var;
```

```
    * create vars for FEs (schoolid-schyear groups);
    egen school_schyear = group(schoolid schyear);

    * create schyear dummies;
    forvalues G = 6/8 {;
        gen gr`G' = grade == `G';
        gen gr`G'_oss = gr`G' * oss;
        label var gr`G' "(1)Grade `G'";
        label var gr`G'_oss "gr`G' * oss";
    };
    forvalues Y = 2008/2019 {;
        gen yr`Y' = schyear == `Y' - 2000;
        gen yr`Y'_oss = yr`Y' * oss;
        label var yr`Y' "(1)`Y'";
        label var yr`Y'_oss "yr`Y' * oss";
        forvalues G = 6/8 {;
            gen yr`Y'_gr`G' = yr`Y' * gr`G';
            gen yr`Y'_gr`G'_oss = yr`Y'_gr`G' * oss;
            label var yr`Y'_gr`G' "yr`Y' * gr`G'";
            label var yr`Y'_gr`G'_oss "yr`Y' * gr`G' * oss";
        };
    };

    * create pre2014 dummy and oss interaction;
    gen pre2014 = schyear < 14;
    gen pre2014_oss = pre2014 * oss;
    label var pre2014_oss "pre2014 * oss";

    label var oss "(1)OSS";

    compress;
    sort schyear schoolid;
    summ;

    save tmpdta/reg01_stueog, replace;

    /* use tmpdta/reg01_stueog, clear;

    reghdfe rd_z oss bl_pct hi_pct wh_pct if rdinpanel, absorb(mastid
schoolid schyear school_schyear) vce(cluster mastid); */

    */


*=====================================================*;
* 2. Regressions
*=====================================================*;

    !echo "SUSPENSION AND TEST SCORES $S_DATE $S_TIME"  > reg01.tbl;
```

```
    !echo "Sample: Schools, Grade 3-8 Students (2008-2019)"    >>
reg01.tbl;

*=======================================================*;
* 2A. School-level regressions
*      EOG reading and math scores on
*       OSS, race, EDS rates
*      School-by-schyear FEs
*=======================================================*;
clear;

local RACERATES     bl_pct hi_pct wh_pct
                    ;
local GRDUMMYSCH    /*gr6*/ gr7 gr8
                    ;
local GROSSSCH      /*gr6_oss_rate*/ gr7_oss_rate gr8_oss_rate
                    ;
* omit last available year;
local YRDUMMY1      yr2008 yr2009 yr2010 yr2011 yr2012 yr2013
                    yr2014 yr2015 yr2016 yr2017 yr2018 /*yr2019*/
                    ;
local YROSSSCH1     yr2008_oss_rate yr2009_oss_rate yr2010_oss_rate
yr2011_oss_rate yr2012_oss_rate yr2013_oss_rate
                    yr2014_oss_rate yr2015_oss_rate yr2016_oss_rate
yr2017_oss_rate yr2018_oss_rate /*yr2019_oss_rate*/
                    ;
local YRDUMMY2      yr2008 yr2009 yr2010 yr2011 yr2012 yr2013
                    yr2014 yr2015 yr2016 /*yr2017*/
                    ;
local YROSSSCH2     yr2008_oss_rate yr2009_oss_rate yr2010_oss_rate
yr2011_oss_rate yr2012_oss_rate yr2013_oss_rate
                    yr2014_oss_rate yr2015_oss_rate yr2016_oss_rate /
*yr2017_oss_rate*/
                    ;
local YRGR1         yr2008_gr7 yr2009_gr7 yr2010_gr7 yr2011_gr7
yr2012_gr7 yr2013_gr7
                    yr2014_gr7 yr2015_gr7 yr2016_gr7 yr2017_gr7
yr2018_gr7
                    yr2008_gr8 yr2009_gr8 yr2010_gr8 yr2011_gr8
yr2012_gr8 yr2013_gr8
                    yr2014_gr8 yr2015_gr8 yr2016_gr8 yr2017_gr8
yr2018_gr8
                    ;
local YRGR2         yr2008_gr7 yr2009_gr7 yr2010_gr7 yr2011_gr7
yr2012_gr7 yr2013_gr7
                    yr2014_gr7 yr2015_gr7 yr2016_gr7
                    yr2008_gr8 yr2009_gr8 yr2010_gr8 yr2011_gr8
yr2012_gr8 yr2013_gr8
                    yr2014_gr8 yr2015_gr8 yr2016_gr8
                    ;
```

```
local YRGROSS1      yr2008_gr7_oss_rate yr2009_gr7_oss_rate
yr2010_gr7_oss_rate yr2011_gr7_oss_rate yr2012_gr7_oss_rate
yr2013_gr7_oss_rate
                    yr2014_gr7_oss_rate yr2015_gr7_oss_rate
yr2016_gr7_oss_rate yr2017_gr7_oss_rate yr2018_gr7_oss_rate
                    yr2008_gr8_oss_rate yr2009_gr8_oss_rate
yr2010_gr8_oss_rate yr2011_gr8_oss_rate yr2012_gr8_oss_rate
yr2013_gr8_oss_rate
                    yr2014_gr8_oss_rate yr2015_gr8_oss_rate
yr2016_gr8_oss_rate yr2017_gr8_oss_rate yr2018_gr8_oss_rate
                    ;
local YRGROSS2      yr2008_gr7_oss_rate yr2009_gr7_oss_rate
yr2010_gr7_oss_rate yr2011_gr7_oss_rate yr2012_gr7_oss_rate
yr2013_gr7_oss_rate
                    yr2014_gr7_oss_rate yr2015_gr7_oss_rate
yr2016_gr7_oss_rate
                    yr2008_gr8_oss_rate yr2009_gr8_oss_rate
yr2010_gr8_oss_rate yr2011_gr8_oss_rate yr2012_gr8_oss_rate
yr2013_gr8_oss_rate
                    yr2014_gr8_oss_rate yr2015_gr8_oss_rate
yr2016_gr8_oss_rate
                    ;
local YRDUMMYSTU    yr2008 yr2009 yr2010 yr2011 yr2012 yr2013
                    yr2014 yr2015 yr2016 yr2017 yr2018 /*yr2019*/
                    ;
local YROSSSTU      yr2008_oss yr2009_oss yr2010_oss yr2011_oss
yr2012_oss yr2013_oss
                    yr2014_oss yr2015_oss yr2016_oss yr2017_oss
yr2018_oss /*yr2019_oss*/
                    ;

local ALLINTSCH1a   `GRDUMMYSCH' `GROSSSCH' `YRGR1' `YROSSSCH1'
`YRGROSS1'
                    ;
local ALLINTSCH2a   `GRDUMMYSCH' `GROSSSCH' `YRGR2' `YROSSSCH2'
`YRGROSS2'
                    ;
local ALLINTSCH1b   gr7 gr8 gr7_oss_rate gr8_oss_rate
                    yr2008_gr7 yr2008_gr8 yr2008_oss_rate
yr2008_gr7_oss_rate yr2008_gr8_oss_rate
                    yr2009_gr7 yr2009_gr8 yr2009_oss_rate
yr2009_gr7_oss_rate yr2009_gr8_oss_rate
                    yr2010_gr7 yr2010_gr8 yr2010_oss_rate
yr2010_gr7_oss_rate yr2010_gr8_oss_rate
                    yr2011_gr7 yr2011_gr8 yr2011_oss_rate
yr2011_gr7_oss_rate yr2011_gr8_oss_rate
                    yr2012_gr7 yr2012_gr8 yr2012_oss_rate
yr2012_gr7_oss_rate yr2012_gr8_oss_rate
                    yr2013_gr7 yr2013_gr8 yr2013_oss_rate
yr2013_gr7_oss_rate yr2013_gr8_oss_rate
```

```
                    yr2014_gr7 yr2014_gr8 yr2014_oss_rate
yr2014_gr7_oss_rate yr2014_gr8_oss_rate
                    yr2015_gr7 yr2015_gr8 yr2015_oss_rate
yr2015_gr7_oss_rate yr2015_gr8_oss_rate
                    yr2016_gr7 yr2016_gr8 yr2016_oss_rate
yr2016_gr7_oss_rate yr2016_gr8_oss_rate
                    yr2017_gr7 yr2017_gr8 yr2017_oss_rate
yr2017_gr7_oss_rate yr2017_gr8_oss_rate
                    yr2018_gr7 yr2018_gr8 yr2018_oss_rate
yr2018_gr7_oss_rate yr2018_gr8_oss_rate
                    ;
local ALLINTSCH2b   gr7 gr8 gr7_oss_rate gr8_oss_rate
                    yr2008_gr7 yr2008_gr8 yr2008_oss_rate
yr2008_gr7_oss_rate yr2008_gr8_oss_rate
                    yr2009_gr7 yr2009_gr8 yr2009_oss_rate
yr2009_gr7_oss_rate yr2009_gr8_oss_rate
                    yr2010_gr7 yr2010_gr8 yr2010_oss_rate
yr2010_gr7_oss_rate yr2010_gr8_oss_rate
                    yr2011_gr7 yr2011_gr8 yr2011_oss_rate
yr2011_gr7_oss_rate yr2011_gr8_oss_rate
                    yr2012_gr7 yr2012_gr8 yr2012_oss_rate
yr2012_gr7_oss_rate yr2012_gr8_oss_rate
                    yr2013_gr7 yr2013_gr8 yr2013_oss_rate
yr2013_gr7_oss_rate yr2013_gr8_oss_rate
                    yr2014_gr7 yr2014_gr8 yr2014_oss_rate
yr2014_gr7_oss_rate yr2014_gr8_oss_rate
                    yr2015_gr7 yr2015_gr8 yr2015_oss_rate
yr2015_gr7_oss_rate yr2015_gr8_oss_rate
                    yr2016_gr7 yr2016_gr8 yr2016_oss_rate
yr2016_gr7_oss_rate yr2016_gr8_oss_rate
                    ;

use tmpdta/reg01_scheog, clear;
    /* replace pre2014 = schyear < 13;
    replace pre2014_oss_rate = pre2014 * oss_rate; */
    * RELABEL FOR LATEX STUFF;
    label var oss_rate "OSS Rate";
    label var eds_rate "\% Econ. Disadv.";
    label var bl_pct   "\% Black";
    label var hi_pct   "\% Hispanic";
    label var wh_pct   "\% White";
    forvalues G = 6/8 {;
        label var gr`G' "Grade `G'";
        label var gr`G'_oss_rate "Grade `G' $\times$ OSS Rate";
    };
    forvalues Y = 2008/2019 {;
        label var yr`Y' "`Y'";
        label var yr`Y'_oss_rate "`Y' $\times$ OSS Rate";
        forvalues G = 6/8 {;
            label var yr`Y'_gr`G' "`Y' $\times$ Grade `G'";
```

```
            label var yr`Y'_gr`G'_oss_rate "`Y' $\times$ Grade `G' $
\times$ OSS Rate";
        };
    };
    label var pre2014_oss_rate "Pre-2014 $\times$ OSS Rate";


    * Table 1: mean reading score and oss rate, schyear*school*grade
level avg of student-level z-scores;
    * A: base + school chars;
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate                    ,
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_mean oss_rate                    ,
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate                    ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 1A. Mean reading score and OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl01a.tex,
        title(Mean reading score and OSS rate\label{tbl01a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1A. Mean reading score and OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: interaction with grade dummies;
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
```

```
        quietly reghdfe rd_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid
schyear);

    estout, title(Table 1B. Mean reading score and OSS rate, grade)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl01b.tex,
        title(Mean reading score and OSS rate, grade\label{tbl01b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1B. Mean reading score and OSS rate, grade)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: interaction with schyear dummies;
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate
`YROSSSCH1', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate
`YROSSSCH1', vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
```

```
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI")
                legend(off)
            ;
            graph export "plot/reg01/tbl01c_col02.png", width(1000)
replace;
            restore;

    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1', vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;
```

```
            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls)")
                legend(off)
            ;
            graph export "plot/reg01/tbl01c_col04.png", width(1000)
replace;
            restore;

    estout, title(Table 1C. Mean reading score and OSS rate, year)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
```

```
    esttab using tex/reg01/tbl01c.tex,
        title(Mean reading score and OSS rate, year\label{tbl01c})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1C. Mean reading score and OSS rate, year)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.1: interaction with schyear and grade dummies (covars grouped
by var type);
    * `ALLINTSCH1a' is `GRDUMMYSCH' `GROSSSCH' `YRGR1' `YROSSSCH1'
`YRGROSS1';
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate
`ALLINTSCH1a', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate
`ALLINTSCH1a', vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a', vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 1D.1. Mean reading score and OSS rate, year,
grade (covars grouped by type))
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl01d1.tex,
        title(Mean reading score and OSS rate, year, grade (covars
grouped by type)\label{tbl01d1})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1D.1. Mean reading score and OSS rate, year, grade
(covars grouped by type))
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.2: interaction with schyear and grade dummies (covars grouped
by year);
```

```
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate
`ALLINTSCH1b', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate
`ALLINTSCH1b', vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1b', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1b', vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 1D.2. Mean reading score and OSS rate, year,
grade (covars grouped by year))
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl01d2.tex,
        title(Mean reading score and OSS rate, year, grade (covars
grouped by year)\label{tbl01d2})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1D.2. Mean reading score and OSS rate, year, grade
(covars grouped by year))
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;
    * test if pre-2014 year interactions are statistically different
in the fully flexible model;
    * same for post-2014. If they are statistically different, we can
specify this model with using pre-2014 interactions;
    reghdfe rd_z_mean oss_rate eds_rate `RACERATES' `ALLINTSCH1a',
vce(cluster schoolid) absorb(schoolid schyear);
    test yr2008_oss_rate = yr2009_oss_rate = yr2010_oss_rate =
yr2011_oss_rate = yr2012_oss_rate = yr2013_oss_rate;
    test yr2014_oss_rate = yr2015_oss_rate = yr2016_oss_rate =
yr2017_oss_rate = yr2018_oss_rate;
    test yr2008_gr7 = yr2009_gr7 = yr2010_gr7 = yr2011_gr7 =
yr2012_gr7 = yr2013_gr7;
    test yr2014_gr7 = yr2015_gr7 = yr2016_gr7 = yr2017_gr7 =
yr2018_gr7;
    test yr2008_gr8 = yr2009_gr8 = yr2010_gr8 = yr2011_gr8 =
yr2012_gr8 = yr2013_gr8;
    test yr2014_gr8 = yr2015_gr8 = yr2016_gr8 = yr2017_gr8 =
yr2018_gr8;
    test yr2008_gr7_oss_rate = yr2009_gr7_oss_rate =
```

```
yr2010_gr7_oss_rate = yr2011_gr7_oss_rate = yr2012_gr7_oss_rate =
yr2013_gr7_oss_rate;
    test yr2014_gr7_oss_rate = yr2015_gr7_oss_rate =
yr2016_gr7_oss_rate = yr2017_gr7_oss_rate = yr2018_gr7_oss_rate;
    test yr2008_gr8_oss_rate = yr2009_gr8_oss_rate =
yr2010_gr8_oss_rate = yr2011_gr8_oss_rate = yr2012_gr8_oss_rate =
yr2013_gr8_oss_rate;
    test yr2014_gr8_oss_rate = yr2015_gr8_oss_rate =
yr2016_gr8_oss_rate = yr2017_gr8_oss_rate = yr2018_gr8_oss_rate;
    * all reject, so need to use fully flexible model;
    * still can use pre-2014 dummy to get a summary stat;

    * E: interaction with pre-2014 dummy;
    eststo, title(OSS):
        quietly reghdfe rd_z_mean oss_rate
pre2014_oss_rate, vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate
pre2014_oss_rate, vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate, vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 1E. Mean reading score and OSS rate, pre-2014)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl01e.tex,
        title(Mean reading score and OSS rate, year\label{tbl01e})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 1E. Mean reading score and OSS rate, pre-2014)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;


    * Table 2: mean math score and oss rate, schyear*school*grade
level avg of student-level z-scores;
    * A: base + school chars;
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate                    ,
vce(cluster schoolid);
    eststo, title(SchFE):
```

```
        quietly reghdfe ma_z_mean oss_rate                    ,
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate                    ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 2A. Mean math score and OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02a.tex,
        title(Mean math score and OSS rate\label{tbl02a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2A. Mean math score and OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: interaction with grade dummies;
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe ma_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH', vce(cluster schoolid) absorb(schoolid
schyear);
```

```
    estout, title(Table 2B. Mean math score and OSS rate, grade)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02b.tex,
        title(Mean math score and OSS rate, grade\label{tbl02b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2B. Mean math score and OSS rate, grade)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: interaction with schyear dummies;
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate
`YROSSSCH1', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate
`YROSSSCH1', vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
```

```
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI")
                legend(off)
            ;
            graph export "plot/reg01/tbl02c_col02.png", width(1000)
replace;
            restore;

    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1', vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
```

```
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI
(controls)")
            legend(off)
        ;
        graph export "plot/reg01/tbl02c_col04.png", width(1000)
replace;
        restore;

    estout, title(Table 2C. Mean math score and OSS rate, year)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02c.tex,
        title(Mean math score and OSS rate, year\label{tbl02c})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2C. Mean math score and OSS rate, year)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.1: interaction with schyear and grade dummies (covars grouped
by var type);
```

```
    * `ALLINTSCH1a' is `GRDUMMYSCH' `GROSSSCH' `YRGR1' `YROSSSCH1'
`YRGROSS1';
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate
`ALLINTSCH1a', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate
`ALLINTSCH1a', vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a', vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 2D.1. Mean math score and OSS rate, year,
grade (covars grouped by type))
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02d1.tex,
        title(Mean math score and OSS rate, year, grade (covars
grouped by type)\label{tbl02d1})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2D.1. Mean math score and OSS rate, year, grade
(covars grouped by type))
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.2: interaction with schyear and grade dummies (covars grouped
by year);
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate
`ALLINTSCH1b', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate
`ALLINTSCH1b', vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1b', vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1b', vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 2D.2. Mean math score and OSS rate, year,
```

```
grade (covars grouped by year))
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02d2.tex,
        title(Mean math score and OSS rate, year, grade (covars
grouped by year)\label{tbl02d2})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2D.2. Mean math score and OSS rate, year, grade
(covars grouped by year))
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * test if pre-2014 year interactions are statistically different
in the fully flexible model;
    * same for post-2014. If they are statistically different, we can
specify this model with using pre-2014 interactions;
    reghdfe ma_z_mean oss_rate eds_rate `RACERATES' `ALLINTSCH1a',
vce(cluster schoolid) absorb(schoolid schyear);
    test yr2008_oss_rate = yr2009_oss_rate = yr2010_oss_rate =
yr2011_oss_rate = yr2012_oss_rate = yr2013_oss_rate;
    test yr2014_oss_rate = yr2015_oss_rate = yr2016_oss_rate =
yr2017_oss_rate = yr2018_oss_rate;
    test yr2008_gr7 = yr2009_gr7 = yr2010_gr7 = yr2011_gr7 =
yr2012_gr7 = yr2013_gr7;
    test yr2014_gr7 = yr2015_gr7 = yr2016_gr7 = yr2017_gr7 =
yr2018_gr7;
    test yr2008_gr8 = yr2009_gr8 = yr2010_gr8 = yr2011_gr8 =
yr2012_gr8 = yr2013_gr8;
    test yr2014_gr8 = yr2015_gr8 = yr2016_gr8 = yr2017_gr8 =
yr2018_gr8;
    test yr2008_gr7_oss_rate = yr2009_gr7_oss_rate =
yr2010_gr7_oss_rate = yr2011_gr7_oss_rate = yr2012_gr7_oss_rate =
yr2013_gr7_oss_rate;
    test yr2014_gr7_oss_rate = yr2015_gr7_oss_rate =
yr2016_gr7_oss_rate = yr2017_gr7_oss_rate = yr2018_gr7_oss_rate;
    test yr2008_gr8_oss_rate = yr2009_gr8_oss_rate =
yr2010_gr8_oss_rate = yr2011_gr8_oss_rate = yr2012_gr8_oss_rate =
yr2013_gr8_oss_rate;
    test yr2014_gr8_oss_rate = yr2015_gr8_oss_rate =
yr2016_gr8_oss_rate = yr2017_gr8_oss_rate = yr2018_gr8_oss_rate;
    * all reject, so need to use fully flexible model;
    * still can use pre-2014 dummy to get a summary stat;

    * E: interaction with pre-2014 dummy;
```

```
    eststo, title(OSS):
        quietly reghdfe ma_z_mean oss_rate
pre2014_oss_rate, vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate
pre2014_oss_rate, vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate, vce(cluster schoolid) absorb(schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 2E. Mean math score and OSS rate, pre-2014)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl02e.tex,
        title(Mean math score and OSS rate, year\label{tbl02e})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 2E. Mean math score and OSS rate, pre-2014)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * Table 3: mean reading score and oss rate, schyear*school*grade
level avg of student-level z-scores, by school type;
    * A. base with eds and race;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate eds_rate
`RACERATES'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
titlei    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if !
titlei   , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
rural     , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
town      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
```

```
city      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
schsmall  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
schmid    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
schlarge  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES' if
bl_pct>0.5, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 3A. Mean reading score and OSS rate by school
type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03a.tex,
        title(Mean reading score and OSS rate by school
type\label{tbl03a})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3A. Mean reading score and OSS rate by school
type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B. grade dummies and interactions;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH'              , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if titlei    , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if !titlei   , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if rural     , vce(cluster schoolid)
absorb(schoolid schyear);
```

```
    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if town      , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if city      , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schsmall  , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schmid    , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schlarge  , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if bl_pct>0.5, vce(cluster schoolid)
absorb(schoolid schyear);

    estout, title(Table 3B. Mean reading score and OSS rate, grade by
school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03b.tex,
        title(Mean reading score and OSS rate, grade by school
type\label{tbl03b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3B. Mean reading score and OSS rate, grade by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C. year interactions with school char controls;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
```

```
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI,
Title I Schools")
                legend(off)
```

```
            ;
            graph export "plot/reg01/tbl03c_col02.png", width(1000)
replace;
            restore;

    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
```

```
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI, Non-
Title I Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col03.png", width(1000)
replace;
            restore;

    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;
```

```
            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI,
Rural Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col04.png", width(1000)
replace;
            restore;

    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if town      , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
```

```
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI, Town
Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col05.png", width(1000)
replace;
            restore;

    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if city      , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
```

```
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Reading Score")
            xtitle("Year")
            title("Effect of OSS Rate on Reading with 99% CI, City
Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl03c_col06.png", width(1000)
replace;
        restore;

    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * Loop over 2008-2018 and use lincom;
        forvalues Y = 2008/2018 {;
```

```
            quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Reading Score")
            xtitle("Year")
            title("Effect of OSS Rate on Reading with 99% CI,
Small Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl03c_col07.png", width(1000)
replace;
        restore;

    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
```

```
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI, Mid-
Sized Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col08.png", width(1000)
replace;
            restore;

    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
```

```
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI,
Large Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col09.png", width(1000)
replace;
            restore;

    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
```

```
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI,
Majority Black Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c_col10.png", width(1000)
```

```
replace;
            restore;

    estout, title(Table 3C. Mean reading score and OSS rate, year by
school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03c.tex,
        title(Mean reading score and OSS rate, year by school
type\label{tbl03c})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3C. Mean reading score and OSS, year rate by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.1. year interactions, NO school char controls;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1'              ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if titlei    ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
```

```
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Reading Score")
            xtitle("Year")
            title("Effect of OSS Rate on Reading with 99% CI
(controls), Title I Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl03c1_col02.png", width(1000)
replace;
        restore;

    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if !titlei   ,
vce(cluster schoolid) absorb(schoolid schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * Loop over 2008–2018 and use lincom;
```

```
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Non-Title I Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col03.png", width(1000)
replace;
            restore;

    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if rural     ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
```

```
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Rural Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col04.png", width(1000)
replace;
            restore;

    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if town      ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;
```

```
            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Town Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col05.png", width(1000)
replace;
            restore;

    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if city      ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
```

```
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), City Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col06.png", width(1000)
replace;
            restore;
```

```
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if schsmall  ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Small Schools")
```

```
            legend(off)
        ;
        graph export "plot/reg01/tbl03c1_col07.png", width(1000)
replace;
        restore;

    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if schmid    ,
vce(cluster schoolid) absorb(schoolid schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * Loop over 2008–2018 and use lincom;
        forvalues Y = 2008/2018 {;
            quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
```

```
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Mid-Sized Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col08.png", width(1000)
replace;
            restore;

    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if schlarge  ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;
```

```
            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Large Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col09.png", width(1000)
replace;
            restore;

    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate `YROSSSCH1' if bl_pct>0.5,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
```

```
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Reading Score")
                xtitle("Year")
                title("Effect of OSS Rate on Reading with 99% CI
(controls), Majority Black Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl03c1_col10.png", width(1000)
replace;
            restore;

    estout, title(Table 3C.1. Mean reading score and OSS rate, year by
school type (no school char controls))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03c1.tex,
        title(Mean reading score and OSS rate, year by school type (no
school char controls)\label{tbl03c1})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3C.1. Mean reading score and OSS, year rate by
school type (no school char controls))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.2 pre-2014 interactions, with controls;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
```

```
    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if town      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if city      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
schyear);

    estout, title(Table 3C.2 Mean reading score and OSS rate, pre-2014
by school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03c2.tex,
        title(Mean reading score and OSS rate, pre-2014 by school
type\label{tbl03c2})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3C.2 Mean reading score and OSS, pre-2014 rate by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.3 pre-2014 interactions, NO controls;
    eststo, title(All):
```

```
        quietly reghdfe rd_z_mean oss_rate
pre2014_oss_rate              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
titlei    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if !
titlei   , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
rural     , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
town      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
city      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
schsmall  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
schmid    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
schlarge  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate pre2014_oss_rate if
bl_pct>0.5, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 3C.3 Mean reading score and OSS rate, pre-2014
by school type (no school char controls))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03c3.tex,
        title(Mean reading score and OSS rate, pre-2014 by school type
(no school char controls)\label{tbl03c3})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 3C.3 Mean reading score and OSS, pre-2014 rate by
school type (no school char controls))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D. fully flexible model;
    eststo, title(All):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
```

```
`ALLINTSCH1a'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(NoTitleI):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Rural):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Town):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if town      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(City):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if city      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Small):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Mid):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Large):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(MajBlack):
        quietly reghdfe rd_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
schyear);

    estout, title(Table 3D. Mean reading score and OSS rate, grade,
year by school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl03d.tex,
        title(Mean reading score and OSS rate, grade, year by school
type\label{tbl03d})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
```

```
        title(Table 3D. Mean reading score and OSS rate, grade, year
by school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;


    * Table 4: mean math score and oss rate, schyear*school*grade
level avg of student-level z-scores, by school type;
    * A. base with eds and race;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate eds_rate
`RACERATES'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
titlei    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if !
titlei   , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
rural     , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
town      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
city      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
schsmall  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
schmid    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
schlarge  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES' if
bl_pct>0.5, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 4A. Mean math score and OSS rate by school
type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04a.tex,
```

```
        title(Mean math score and OSS rate by school
type\label{tbl04a})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4A. Mean math score and OSS rate by school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B. grade dummies and interactions;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH'              , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if titlei    , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if !titlei   , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if rural     , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if town      , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if city      , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schsmall  , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schmid    , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if schlarge  , vce(cluster schoolid)
absorb(schoolid schyear);
    eststo, title(MajBlack):
```

```
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`GRDUMMYSCH' `GROSSSCH' if bl_pct>0.5, vce(cluster schoolid)
absorb(schoolid schyear);

    estout, title(Table 4B. Mean math score and OSS rate, grade by
school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04b.tex,
        title(Mean math score and OSS rate, grade by school
type\label{tbl04b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4B. Mean math score and OSS rate, grade by school
type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C. year interactions with school char controls;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
```

```
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI, Title I
Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl04c_col02.png", width(1000)
replace;
        restore;

    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
```

```
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI, Non-
Title I Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col03.png", width(1000)
replace;
            restore;

    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;
```

```
            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI, Rural
Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col04.png", width(1000)
replace;
            restore;

    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if town      , vce(cluster schoolid) absorb(schoolid
schyear);
```

```
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI, Town
Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col05.png", width(1000)
replace;
```

```
            restore;

    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if city      , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
```

```
                title("Effect of OSS Rate on Math with 99% CI, City
Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col06.png", width(1000)
replace;
            restore;

    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
```

```
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI, Small
Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl04c_col07.png", width(1000)
replace;
        restore;

    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * Loop over 2008–2018 and use lincom;
        forvalues Y = 2008/2018 {;
            quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
```

```
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI, Mid-
Sized Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col08.png", width(1000)
replace;
            restore;

    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };
```

```
            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI, Large
Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c_col09.png", width(1000)
replace;
            restore;

    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`YROSSSCH1' if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
```

```
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI,
Majority Black Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl04c_col10.png", width(1000)
replace;
        restore;

    estout, title(Table 4C. Mean math score and OSS rate, year by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04c.tex,
        title(Mean math score and OSS rate, year by school
type\label{tbl04c})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4C. Mean math score and OSS, year rate by school
type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;
```

```
    * C.1. year interactions, NO school char controls;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1'              ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if titlei    ,
vce(cluster schoolid) absorb(schoolid schyear);
           * get oss_rate effect by year and test if they are
significant;
           preserve;
           * Create an empty dataset;
           clear;
           set obs 12;

           quietly gen year    = 2008 + _n - 1;
           quietly gen effect  = .;
           quietly gen se      = .;
           quietly gen ci_low  = .;
           quietly gen ci_high = .;
           quietly gen F       = .;
           quietly gen p       = .;

           * Loop over 2008–2018 and use lincom;
           forvalues Y = 2008/2018 {;
               quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
               quietly replace effect  = r(estimate) in `=`Y'-2007';
               quietly replace se      = r(se)       in `=`Y'-2007';
               quietly replace ci_low  = r(lb)       in `=`Y'-2007';
               quietly replace ci_high = r(ub)       in `=`Y'-2007';
               quietly replace F       = r(t)^2      in `=`Y'-2007';
               quietly replace p       = r(p)        in `=`Y'-2007';
           };

           * For 2019 (the omitted base year);
           quietly lincom oss_rate, level(99);
           quietly replace effect  = r(estimate) in 12;
           quietly replace se      = r(se)       in 12;
           quietly replace ci_low  = r(lb)       in 12;
           quietly replace ci_high = r(ub)       in 12;
           quietly replace F       = r(t)^2      in 12;
           quietly replace p       = r(p)        in 12;

           list year effect F p, noobs clean;

           twoway
               (rarea ci_high ci_low year, color(gs12%50))
               (line effect year, lwidth(medium)),
               yline(0)
               xlabel(2008(1)2019, angle(45))
```

```
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Title I Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col02.png", width(1000)
replace;
            restore;

    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if !titlei   ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;
```

```
            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Non-Title I Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col03.png", width(1000)
replace;
            restore;

    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if rural     ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
```

```
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Rural Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col04.png", width(1000)
replace;
            restore;

    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if town      ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
```

```
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Town Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col05.png", width(1000)
replace;
            restore;

    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if city      ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
```

```
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI
(controls), City Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl04c1_col06.png", width(1000)
replace;
        restore;

    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if schsmall  ,
vce(cluster schoolid) absorb(schoolid schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * Loop over 2008-2018 and use lincom;
        forvalues Y = 2008/2018 {;
```

```
            quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace ci_low  = r(lb)       in `=`Y'-2007';
            quietly replace ci_high = r(ub)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss_rate, level(99);
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace ci_low  = r(lb)       in 12;
        quietly replace ci_high = r(ub)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS Rate on Mean Math Score")
            xtitle("Year")
            title("Effect of OSS Rate on Math with 99% CI
(controls), Small Schools")
            legend(off)
        ;
        graph export "plot/reg01/tbl04c1_col07.png", width(1000)
replace;
        restore;

    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if schmid    ,
vce(cluster schoolid) absorb(schoolid schyear);
        * get oss_rate effect by year and test if they are
significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen ci_low  = .;
        quietly gen ci_high = .;
```

```
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Mid-Sized Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col08.png", width(1000)
replace;
            restore;

    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if schlarge  ,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;
```

```
            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Large Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col09.png", width(1000)
replace;
            restore;

    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate `YROSSSCH1' if bl_pct>0.5,
vce(cluster schoolid) absorb(schoolid schyear);
            * get oss_rate effect by year and test if they are
significant;
```

```
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen ci_low  = .;
            quietly gen ci_high = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss_rate + yr`Y'_oss_rate, level(99);
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace ci_low  = r(lb)       in `=`Y'-2007';
                quietly replace ci_high = r(ub)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss_rate, level(99);
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace ci_low  = r(lb)       in 12;
            quietly replace ci_high = r(ub)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS Rate on Mean Math Score")
                xtitle("Year")
                title("Effect of OSS Rate on Math with 99% CI
(controls), Majority Black Schools")
                legend(off)
            ;
            graph export "plot/reg01/tbl04c1_col10.png", width(1000)
replace;
            restore;
```

```
    estout, title(Table 4C.1. Mean math score and OSS rate, year by
school type (no school char controls))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04c1.tex,
        title(Mean math score and OSS rate, year by school type (no
school char controls)\label{tbl04c1})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4C.1. Mean math score and OSS, year rate by school
type (no school char controls))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.2 pre-2014 interactions, with controls;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if town      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if city      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Large):
```

```
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
pre2014_oss_rate if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
schyear);

    estout, title(Table 4C.2 Mean math score and OSS rate, pre-2014 by
school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04c2.tex,
        title(Mean math score and OSS rate, pre-2014 by school
type\label{tbl04c2})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4C.2 Mean math score and OSS, pre-2014 rate by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.3 pre-2014 interactions, NO controls;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate
pre2014_oss_rate              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
titlei    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if !
titlei   , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
rural     , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
town      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
city      , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
schsmall  , vce(cluster schoolid) absorb(schoolid schyear);
```

```
    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
schmid    , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
schlarge  , vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate pre2014_oss_rate if
bl_pct>0.5, vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 4C.3 Mean math score and OSS rate, pre-2014 by
school type (no school char controls))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04c3.tex,
        title(Mean math score and OSS rate, pre-2014 by school type
(no school char controls)\label{tbl04c3})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4C.3 Mean math score and OSS, pre-2014 rate by
school type (no school char controls))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D. fully flexible model;
    eststo, title(All):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a'              , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(TitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if titlei    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(NoTitleI):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if !titlei   , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Rural):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if rural     , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Town):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if town      , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(City):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH2a' if city      , vce(cluster schoolid) absorb(schoolid
```

```
schyear);
    eststo, title(Small):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schsmall  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Mid):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schmid    , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(Large):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if schlarge  , vce(cluster schoolid) absorb(schoolid
schyear);
    eststo, title(MajBlack):
        quietly reghdfe ma_z_mean oss_rate eds_rate `RACERATES'
`ALLINTSCH1a' if bl_pct>0.5, vce(cluster schoolid) absorb(schoolid
schyear);

    estout, title(Table 4D. Mean math score and OSS rate, grade, year
by school type)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl04d.tex,
        title(Mean math score and OSS rate, grade, year by school
type\label{tbl04d})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 4D. Mean math score and OSS rate, grade, year by
school type)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * Table 5: score variance and oss rate;
    * A: reading;
    eststo, title(OSS):
        quietly reghdfe rd_z_var oss_rate                    ,
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_var oss_rate                    ,
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_var oss_rate                    ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe rd_z_var oss_rate eds_rate `RACERATES',
```

```
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe rd_z_var oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z_var oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 5A. Reading score variance and OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl05a.tex,
        title(Reading score variance and OSS rate\label{tbl05a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 5A. Reading score variance and OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: math;
    eststo, title(OSS):
        quietly reghdfe ma_z_var oss_rate                    ,
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe ma_z_var oss_rate                    ,
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_var oss_rate                    ,
vce(cluster schoolid) absorb(schoolid schyear);
    eststo, title(OSSRaceEDS):
        quietly reghdfe ma_z_var oss_rate eds_rate `RACERATES',
vce(cluster schoolid);
    eststo, title(SchFE):
        quietly reghdfe ma_z_var oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z_var oss_rate eds_rate `RACERATES',
vce(cluster schoolid) absorb(schoolid schyear);

    estout, title(Table 5B. Math score variance and OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl05b.tex,
        title(Math score variance and OSS rate\label{tbl05b})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 5B. Math score variance and OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
```

```
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;


*=====================================================*;
* 2B. Student-level regressions
*      EOG reading and math scores on
*       OSS, race, EDS rates
*      Indiv-by-school-by-schyear FEs
*=====================================================*;

clear;
use tmpdta/reg01_stueog, clear;
    * RELABEL FOR LATEX STUFF;
    label var oss      "OSS";
    label var oss_rate "OSS Rate";
    label var eds_rate "\% Econ. Disadv.";
    label var bl_pct   "\% Black";
    label var hi_pct   "\% Hispanic";
    label var wh_pct   "\% White";
    forvalues G = 6/8 {;
        label var gr`G' "Grade `G'";
        label var gr`G'_oss "Grade `G' $\times$ OSS";
    };
    forvalues Y = 2008/2019 {;
        label var yr`Y' "`Y'";
        label var yr`Y'_oss "`Y' $\times$ OSS";
        forvalues G = 6/8 {;
            label var yr`Y'_gr`G' "`Y' $\times$ Grade `G'";
            label var yr`Y'_gr`G'_oss "`Y' $\times$ Grade `G' $\times$
OSS";
        };
    };
    label var pre2014_oss "Pre-2014 $\times$ OSS";

    * Table 6: reading score and oss, all FE combinations;
    * A: oss;
    eststo, title(OSS):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid) absorb(mastid schyear);
```

```
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss                      if rdinpanel,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(OSS):
        quietly reghdfe rd_z oss eds_rate `RACERATES' if rdinpanel,
vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' if rdinpanel,
vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' if rdinpanel,
vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' if rdinpanel,
vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' if rdinpanel,
vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 6A. Reading score and OSS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl06a.tex,
        title(Reading score and OSS\label{tbl06a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 6A. Reading score and OSS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss_rate;
    eststo, title(OSSrate):
        quietly reghdfe rd_z oss_rate                    if
rdinpanel, vce(cluster schoolid);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss_rate                    if
rdinpanel, vce(cluster schoolid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss_rate                    if
rdinpanel, vce(cluster schoolid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss_rate                    if
rdinpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss_rate                    if
```

```
rdinpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);
    eststo, title(OSSrate):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster schoolid);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster schoolid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster schoolid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);

    estout, title(Table 6B. Reading score and school OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl06b.tex,
        title(Reading score and school OSS rate\label{tbl06b})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 6B. Reading score and school OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss and oss_rate;
    eststo, title(OSSall):
        quietly reghdfe rd_z oss oss_rate                    if
rdinpanel, vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss oss_rate                    if
rdinpanel, vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate                    if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss oss_rate                    if
rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss oss_rate                    if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(OSSall):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster mastid);
    eststo, title(StuFE):
```

```
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES' if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 6C. Reading score and OSS, school OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl06c.tex,
        title(Reading score and OSS, school OSS rate\label{tbl06c})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 6C. Reading score and OSS, school OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * Table 7: math score and oss, all FE combinations;
    * A: oss;
    eststo, title(OSS):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss                    if mainpanel,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(OSS):
        quietly reghdfe ma_z oss eds_rate `RACERATES' if mainpanel,
vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' if mainpanel,
```

```
vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' if mainpanel,
vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' if mainpanel,
vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' if mainpanel,
vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 7A. Math score and OSS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl07a.tex,
        title(Math score and OSS\label{tbl07a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 7A. Math score and OSS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss_rate;
    eststo, title(OSSrate):
        quietly reghdfe ma_z oss_rate                    if
mainpanel, vce(cluster schoolid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss_rate                    if
mainpanel, vce(cluster schoolid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss_rate                    if
mainpanel, vce(cluster schoolid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe ma_z oss_rate                    if
mainpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss_rate                    if
mainpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);
    eststo, title(OSSrate):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster schoolid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster schoolid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster schoolid) absorb(mastid schoolid);
    eststo, title(YrFE):
```

```
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);

    estout, title(Table 7B. Math score and school OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl07b.tex,
        title(Math score and school OSS rate\label{tbl07b})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 7B. Math score and school OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss and oss_rate;
    eststo, title(OSSall):
        quietly reghdfe ma_z oss oss_rate                       if
mainpanel, vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate                       if
mainpanel, vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate                       if
mainpanel, vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe ma_z oss oss_rate                       if
mainpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss oss_rate                       if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(OSSall):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster mastid);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster mastid) absorb(mastid);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster mastid) absorb(mastid schoolid);
    eststo, title(YrFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchYrFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES' if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear);
```

```
    estout, title(Table 7C. Math score and OSS, school OSS rate)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl07c.tex,
        title(Math score and OSS, school OSS rate\label{tbl07c})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 7C. Math score and OSS, school OSS rate)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;


    * Table 8: reading score and oss, year dummies;
    * A: oss;
    eststo, title(OSS):
        quietly reghdfe rd_z oss                        `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss                        `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss                        `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(OSS):
        quietly reghdfe rd_z oss eds_rate `RACERATES' `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss eds_rate `RACERATES' `YROSSSTU' if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);

    estout, title(Table 8A. Reading score and OSS, year dummies)
            order(oss eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl08a.tex,
        title(Reading score and OSS, year dummies\label{tbl08a})
        order(oss eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 8A. Reading score and OSS, year dummies)
        order(oss eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
```

```
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss_rate;
    eststo, title(OSS):
        quietly reghdfe rd_z oss_rate                       `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss_rate                       `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss_rate                       `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);
    eststo, title(OSS):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if rdinpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);

    estout, title(Table 8B. Reading score and school OSS rate, year
dummies)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl08b.tex,
        title(Reading score and school OSS rate, year
dummies\label{tbl08b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 8B. Reading score and school OSS rate, year
dummies)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss & oss_rate;
    eststo, title(OSS):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
```

```
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI")
                legend(off)
```

```
            ;
            graph export "plot/reg01/tbl08c_col03.png", width(1000)
replace;
            restore;

    eststo, title(OSS):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;
```

```
            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls)")
                legend(off)
            ;
            graph export "plot/reg01/tbl08c_col06.png", width(1000)
replace;
            restore;

    estout, title(Table 8C. Reading score and OSS, school OSS rate,
year dummies)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl08c.tex,
        title(Reading score and OSS, school OSS rate, year
dummies\label{tbl08c})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 8C. Reading score and OSS, school OSS rate, year
dummies)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.1: oss & oss_rate (pre-2014);
    eststo, title(OSS):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(OSS):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(schyear);
```

```
    eststo, title(StuFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 8C.1. Reading score and OSS, school OSS rate,
pre-2014 interaction)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl08c1.tex,
        title(Reading score and OSS, school OSS rate, pre-2014
interaction\label{tbl08c1})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 8C.1. Reading score and OSS, school OSS rate,
pre-2014 interaction)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * Table 9: math score and oss, year dummies;
    * A: oss;
    eststo, title(OSS):
        quietly reghdfe ma_z oss                        `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss                        `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss                        `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(OSS):
        quietly reghdfe ma_z oss eds_rate `RACERATES' `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss eds_rate `RACERATES' `YROSSSTU' if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
```

```
    estout, title(Table 9A. Math score and OSS, year dummies)
            order(oss eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl09a.tex,
        title(Math score and OSS, year dummies\label{tbl09a})
        order(oss eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 9A. Math score and OSS, year dummies)
        order(oss eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss_rate;
    eststo, title(OSS):
        quietly reghdfe ma_z oss_rate                       `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss_rate                       `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss_rate                       `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);
    eststo, title(OSS):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss_rate eds_rate `RACERATES' `YROSSSTU'
if mainpanel, vce(cluster schoolid) absorb(mastid schoolid schyear);

    estout, title(Table 9B. Math score and school OSS rate, year
dummies)
            order(oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl09b.tex,
        title(Math score and school OSS rate, year
dummies\label{tbl09b})
        order(oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 9B. Math score and school OSS rate, year dummies)
        order(oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
```

```
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss & oss_rate;
    eststo, title(OSS):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;
```

```
            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI")
                legend(off)
            ;
            graph export "plot/reg01/tbl09c_col03.png", width(1000)
replace;
            restore;

    eststo, title(OSS):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };
```

```
            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls)")
                legend(off)
            ;
            graph export "plot/reg01/tbl09c_col06.png", width(1000)
replace;
            restore;

    estout, title(Table 9C. Math score and OSS, school OSS rate, year
dummies)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl09c.tex,
        title(Math score and OSS, school OSS rate, year
dummies\label{tbl09c})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 9C. Math score and OSS, school OSS rate, year
dummies)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C.1: oss & oss_rate (pre-2014);
    eststo, title(OSS):
        quietly reghdfe ma_z oss oss_rate
```

```
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(OSS):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(schyear);
    eststo, title(StuFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schyear);
    eststo, title(SchFE):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 9C.1. Math score and OSS, school OSS rate,
pre-2014 interaction)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl09c1.tex,
        title(Math score and OSS, school OSS rate, pre-2014
interaction\label{tbl09c1})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 9C.1. Math score and OSS, school OSS rate,
pre-2014 interaction)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * Table 10: reading scores by race;
    * A: oss;
    eststo, title(All):
        quietly reghdfe rd_z oss if rdinpanel       , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss if rdinpanel       , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Black):
        quietly reghdfe rd_z oss if rdinpanel & black, vce(cluster
mastid);
    eststo, title(AllFE):
```

```
        quietly reghdfe rd_z oss if rdinpanel & black, vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Hisp):
        quietly reghdfe rd_z oss if rdinpanel & hisp , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss if rdinpanel & hisp , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(White):
        quietly reghdfe rd_z oss if rdinpanel & white, vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss if rdinpanel & white, vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(EDS):
        quietly reghdfe rd_z oss if rdinpanel & eds  , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss if rdinpanel & eds  , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);

    estout, title(Table 10A. Reading score and OSS by Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10a.tex,
        title(Reading score and OSS by Race, EDS\label{tbl10a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10A. Reading score and OSS by Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss with year dummies;
    eststo, title(All):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel        ,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel        ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Black):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & black,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & black,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Hisp):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & hisp ,
vce(cluster mastid) absorb(schyear);
```

```
    eststo, title(AllFE):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & hisp ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(White):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & white,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & white,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(EDS):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & eds  ,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss `YROSSSTU' if rdinpanel & eds  ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);

    estout, title(Table 10B. Reading score and OSS, year, by Race,
EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10b.tex,
        title(Reading score and OSS, year, by Race, EDS\label{tbl10b})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10B. Reading score and OSS, year, by Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss oss_rate;
    eststo, title(All):
        quietly reghdfe rd_z oss oss_rate if rdinpanel        ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate if rdinpanel        ,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Black):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & black,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & black,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Hisp):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & hisp ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & hisp ,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(White):
```

```
        quietly reghdfe rd_z oss oss_rate if rdinpanel & white,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & white,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & eds  ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate if rdinpanel & eds  ,
vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 10C. Reading score and OSS, school OSS rate by
Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10c.tex,
        title(Reading score and OSS, school OSS rate, by Race,
EDS\label{tbl10c})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10C. Reading score and OSS, school OSS rate by
Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D: oss oss_rate with year dummies;
    eststo, title(All):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if
rdinpanel        , vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if
rdinpanel        , vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Black):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
black, vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
black, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Hisp):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
hisp , vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
hisp , vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(White):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
```

```
white, vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
white, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
eds  , vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe rd_z oss oss_rate `YROSSSTU' if rdinpanel &
eds  , vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 10D. Reading score and OSS, school OSS rate,
year, by Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10d.tex,
        title(Reading score and OSS, school OSS rate, year, by Race,
EDS\label{tbl10d})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10D. Reading score and OSS, school OSS rate, year,
by Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.1: oss oss_rate with year dummies and controls;
    eststo, title(All):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
```

```
            quietly lincom oss + yr`Y'_oss;
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss;
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        gen ci_low  = effect - `cv' * se;
        gen ci_high = effect + `cv' * se;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS on Reading Score")
            xtitle("Year")
            title("Effect of OSS on Reading with Schwarz CI")
            legend(off)
        ;
        graph export "plot/reg01/tbl10d1_col01.png", width(1000)
replace;
        restore;

    eststo, title(AllCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
        * get oss effect by year and test if they are significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * get level for Schwarz criterion;
```

```
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls)")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col02.png", width(1000)
replace;
            restore;

    eststo, title(Black):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
```

```
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI,
Black")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col03.png", width(1000)
replace;
            restore;

    eststo, title(BlackCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
```

```
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls), black")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col04.png", width(1000)
replace;
            restore;
```

```
    eststo, title(Hisp):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI,
```

```
Hispanic")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col05.png", width(1000)
replace;
            restore;

    eststo, title(HispCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
```

```
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls), Hispanic")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col06.png", width(1000)
replace;
            restore;

    eststo, title(White):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
```

```
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI,
White")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col07.png", width(1000)
replace;
            restore;

    eststo, title(WhiteCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
```

```
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls), White")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col08.png", width(1000)
replace;
            restore;

    eststo, title(EDS):
        quietly reghdfe rd_z oss oss_rate
`YROSSSTU' if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
```

```
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss;
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        gen ci_low  = effect - `cv' * se;
        gen ci_high = effect + `cv' * se;

        list year effect F p, noobs clean;

        twoway
            (rarea ci_high ci_low year, color(gs12%50))
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS on Reading Score")
            xtitle("Year")
            title("Effect of OSS on Reading with Schwarz CI, Econ
Disadv")
            legend(off)
        ;
        graph export "plot/reg01/tbl10d1_col09.png", width(1000)
replace;
        restore;

    eststo, title(EDSCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
        * get oss effect by year and test if they are significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * get level for Schwarz criterion;
        local cv = sqrt(log(e(N)));
        di "Critical value: `cv'";
```

```
            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Reading Score")
                xtitle("Year")
                title("Effect of OSS on Reading with Schwarz CI
(controls), Econ Disadv")
                legend(off)
            ;
            graph export "plot/reg01/tbl10d1_col10.png", width(1000)
replace;
            restore;

    estout, title(Table 10D.1. Reading score and OSS, school OSS rate,
year, school chars by Race, EDS)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10d1.tex,
        title(Reading score and OSS, school OSS rate, year, school
chars by Race, EDS\label{tbl10d1})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10D.1. Reading score and OSS, school OSS rate,
year, school chars by Race, EDS)
```

```
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.2: oss oss_rate with pre-2014 dummy and controls;
    eststo, title(All):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(AllCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(Black):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(BlackCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(Hisp):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(HispCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(White):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(WhiteCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe rd_z oss oss_rate
pre2014_oss if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(EDSCont):
        quietly reghdfe rd_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);

    estout, title(Table 10D.2. Reading score and OSS, school OSS rate,
pre-2014, school chars by Race, EDS)
```

```
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl10d2.tex,
        title(Reading score and OSS, school OSS rate, pre-2014, school
chars by Race, EDS\label{tbl10d2})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 10D.2. Reading score and OSS, school OSS rate,
pre-2014, school chars by Race, EDS)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;


    * Table 11: math scores by race;
    * A: oss;
    eststo, title(All):
        quietly reghdfe ma_z oss if mainpanel        , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss if mainpanel        , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Black):
        quietly reghdfe ma_z oss if mainpanel & black, vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss if mainpanel & black, vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Hisp):
        quietly reghdfe ma_z oss if mainpanel & hisp , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss if mainpanel & hisp , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(White):
        quietly reghdfe ma_z oss if mainpanel & white, vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss if mainpanel & white, vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(EDS):
        quietly reghdfe ma_z oss if mainpanel & eds  , vce(cluster
mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss if mainpanel & eds  , vce(cluster
mastid) absorb(mastid schoolid schyear school_schyear);
```

```
    estout, title(Table 11A. Math score and OSS by Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11a.tex,
        title(Math score and OSS by Race, EDS\label{tbl11a})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 11A. Math score and OSS by Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * B: oss with year dummies;
    eststo, title(All):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel        ,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel        ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Black):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & black,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & black,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(Hisp):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & hisp ,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & hisp ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(White):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & white,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & white,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);
    eststo, title(EDS):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & eds  ,
vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss `YROSSSTU' if mainpanel & eds  ,
vce(cluster mastid) absorb(mastid schoolid schyear school_schyear);

    estout, title(Table 11B. Math score and OSS, year, by Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11b.tex,
```

```
        title(Math score and OSS, year, by Race, EDS\label{tbl11b})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 11B. Math score and OSS, year, by Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * C: oss oss_rate;
    eststo, title(All):
        quietly reghdfe ma_z oss oss_rate if mainpanel       ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate if mainpanel       ,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Black):
        quietly reghdfe ma_z oss oss_rate if mainpanel & black,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate if mainpanel & black,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Hisp):
        quietly reghdfe ma_z oss oss_rate if mainpanel & hisp ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate if mainpanel & hisp ,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(White):
        quietly reghdfe ma_z oss oss_rate if mainpanel & white,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate if mainpanel & white,
vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe ma_z oss oss_rate if mainpanel & eds  ,
vce(cluster mastid);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate if mainpanel & eds  ,
vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 11C. Math score and OSS, school OSS rate by
Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11c.tex,
        title(Math score and OSS, school OSS rate, by Race,
EDS\label{tbl11c})
        booktabs label replace;
    estout using reg01.tmp,
```

```
        title(Table 11C. Math score and OSS, school OSS rate by Race,
EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D: oss oss_rate with year dummies;
    eststo, title(All):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if
mainpanel        , vce(cluster mastid) absorb(schyear);
    eststo, title(AllFE):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if
mainpanel        , vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Black):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
black, vce(cluster mastid) absorb(schyear);
    eststo, title(BlackFE):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
black, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(Hisp):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
hisp , vce(cluster mastid) absorb(schyear);
    eststo, title(HispFE):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
hisp , vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(White):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
white, vce(cluster mastid) absorb(schyear);
    eststo, title(WhiteFE):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
white, vce(cluster mastid) absorb(mastid schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
eds  , vce(cluster mastid) absorb(schyear);
    eststo, title(EDSFE):
        quietly reghdfe ma_z oss oss_rate `YROSSSTU' if mainpanel &
eds  , vce(cluster mastid) absorb(mastid schoolid schyear);

    estout, title(Table 11D. Math score and OSS, school OSS rate,
year, by Race, EDS)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11d.tex,
        title(Math score and OSS, school OSS rate, year, by Race,
EDS\label{tbl11d})
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 11D. Math score and OSS, school OSS rate, year, by
```

```
Race, EDS)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.1: oss oss_rate with year dummies and controls;
    eststo, title(All):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
```

```
            (line effect year, lwidth(medium)),
            yline(0)
            xlabel(2008(1)2019, angle(45))
            ytitle("Effect of OSS on Math Score")
            xtitle("Year")
            title("Effect of OSS on Math with Schwarz CI")
            legend(off)
        ;
        graph export "plot/reg01/tbl11d1_col01.png", width(1000)
replace;
        restore;

    eststo, title(AllCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
        * get oss effect by year and test if they are significant;
        preserve;
        * Create an empty dataset;
        clear;
        set obs 12;

        quietly gen year    = 2008 + _n - 1;
        quietly gen effect  = .;
        quietly gen se      = .;
        quietly gen F       = .;
        quietly gen p       = .;

        * get level for Schwarz criterion;
        local cv = sqrt(log(e(N)));
        di "Critical value: `cv'";

        * Loop over 2008–2018 and use lincom;
        forvalues Y = 2008/2018 {;
            quietly lincom oss + yr`Y'_oss;
            quietly replace effect  = r(estimate) in `=`Y'-2007';
            quietly replace se      = r(se)       in `=`Y'-2007';
            quietly replace F       = r(t)^2      in `=`Y'-2007';
            quietly replace p       = r(p)        in `=`Y'-2007';
        };

        * For 2019 (the omitted base year);
        quietly lincom oss;
        quietly replace effect  = r(estimate) in 12;
        quietly replace se      = r(se)       in 12;
        quietly replace F       = r(t)^2      in 12;
        quietly replace p       = r(p)        in 12;

        gen ci_low  = effect - `cv' * se;
        gen ci_high = effect + `cv' * se;
```

```
            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls)")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col02.png", width(1000)
replace;
            restore;

    eststo, title(Black):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
```

```
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI, Black")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col03.png", width(1000)
replace;
            restore;

    eststo, title(BlackCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008-2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
```

```
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls), black")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col04.png", width(1000)
replace;
            restore;

    eststo, title(Hisp):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
```

```
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI,
Hispanic")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col05.png", width(1000)
replace;
            restore;

    eststo, title(HispCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;
```

```
            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls), Hispanic")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col06.png", width(1000)
replace;
            restore;

    eststo, title(White):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;
```

```
            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI, White")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col07.png", width(1000)
replace;
            restore;

    eststo, title(WhiteCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
```

```
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls), White")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col08.png", width(1000)
replace;
```

```
            restore;

    eststo, title(EDS):
        quietly reghdfe ma_z oss oss_rate
`YROSSSTU' if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
```

```
                title("Effect of OSS on Math with Schwarz CI, Econ
Disadv")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col09.png", width(1000)
replace;
            restore;

    eststo, title(EDSCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
`YROSSSTU' if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
            * get oss effect by year and test if they are significant;
            preserve;
            * Create an empty dataset;
            clear;
            set obs 12;

            quietly gen year    = 2008 + _n - 1;
            quietly gen effect  = .;
            quietly gen se      = .;
            quietly gen F       = .;
            quietly gen p       = .;

            * get level for Schwarz criterion;
            local cv = sqrt(log(e(N)));
            di "Critical value: `cv'";

            * Loop over 2008–2018 and use lincom;
            forvalues Y = 2008/2018 {;
                quietly lincom oss + yr`Y'_oss;
                quietly replace effect  = r(estimate) in `=`Y'-2007';
                quietly replace se      = r(se)       in `=`Y'-2007';
                quietly replace F       = r(t)^2      in `=`Y'-2007';
                quietly replace p       = r(p)        in `=`Y'-2007';
            };

            * For 2019 (the omitted base year);
            quietly lincom oss;
            quietly replace effect  = r(estimate) in 12;
            quietly replace se      = r(se)       in 12;
            quietly replace F       = r(t)^2      in 12;
            quietly replace p       = r(p)        in 12;

            gen ci_low  = effect - `cv' * se;
            gen ci_high = effect + `cv' * se;

            list year effect F p, noobs clean;

            twoway
```

```
                (rarea ci_high ci_low year, color(gs12%50))
                (line effect year, lwidth(medium)),
                yline(0)
                xlabel(2008(1)2019, angle(45))
                ytitle("Effect of OSS on Math Score")
                xtitle("Year")
                title("Effect of OSS on Math with Schwarz CI
(controls), Econ Disadv")
                legend(off)
            ;
            graph export "plot/reg01/tbl11d1_col10.png", width(1000)
replace;
            restore;

    estout, title(Table 11D.1. Math score and OSS, school OSS rate,
year, school chars by Race, EDS)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11d1.tex,
        title(Math score and OSS, school OSS rate, year, school chars
by Race, EDS\label{tbl11d1})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 11D.1. Math score and OSS, school OSS rate, year,
school chars by Race, EDS)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;

    * D.2: oss oss_rate with pre-2014 dummy and controls;
    eststo, title(All):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(AllCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel        , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(Black):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(BlackCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & black, vce(cluster mastid) absorb(mastid
schoolid schyear);
```

```
    eststo, title(Hisp):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(HispCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & hisp , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(White):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(WhiteCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(EDS):
        quietly reghdfe ma_z oss oss_rate
pre2014_oss if mainpanel & eds  , vce(cluster mastid) absorb(mastid
schoolid schyear);
    eststo, title(EDSCont):
        quietly reghdfe ma_z oss oss_rate eds_rate `RACERATES'
pre2014_oss if mainpanel & white, vce(cluster mastid) absorb(mastid
schoolid schyear);

    estout, title(Table 11D.2. Math score and OSS, school OSS rate,
pre-2014, school chars by Race, EDS)
            order(oss oss_rate eds_rate `RACERATES')
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg01/tbl11d2.tex,
        title(Math score and OSS, school OSS rate, pre-2014, school
chars by Race, EDS\label{tbl11d2})
        order(oss oss_rate eds_rate `RACERATES')
        booktabs label replace;
    estout using reg01.tmp,
        title(Table 11D.2. Math score and OSS, school OSS rate,
pre-2014, school chars by Race, EDS)
        order(oss oss_rate eds_rate `RACERATES')
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg01.tmp >> reg01.tbl;
    eststo clear;



di "$S_TIME $S_DATE";

*-----------------------------------------------------*;
* Clean-up
```

```
*-----------------------------------------------------*;

    !del reg01.tmp;

exit;
    * use tmpdta/reg01_stueog, clear;

    reghdfe rd_z oss, vce(cluster mastid);
    reghdfe rd_z oss_rate, vce(cluster mastid);
    reghdfe rd_z oss oss_rate, vce(cluster mastid);
    reghdfe rd_z oss, vce(cluster mastid) absorb(mastid);
    reghdfe rd_z oss_rate, vce(cluster mastid) absorb(mastid);
    reghdfe rd_z oss oss_rate, vce(cluster mastid) absorb(mastid);
    reghdfe rd_z oss, absorb(mastid schoolid) vce(cluster mastid);
    reghdfe rd_z oss_rate, absorb(mastid schoolid) vce(cluster
mastid);
    reghdfe rd_z oss oss_rate, absorb(mastid schoolid) vce(cluster
mastid);
    reghdfe rd_z oss, vce(cluster mastid) absorb(mastid schoolid
schyear);
    reghdfe rd_z oss_rate, vce(cluster mastid) absorb(mastid schoolid
schyear);
    reghdfe rd_z oss oss_rate, vce(cluster mastid) absorb(mastid
schoolid schyear);
    exit;
```

```
#delimit ;
set linesize 180;
*-------------------------------------------------------*;
* Suspension and test scores                            *
*  Fixed effect *panel* models to estimate effect       *
*   of OSS on EOG test scores                           *
*  Use z-scored (state-by-year-by-grade) EOG scores     *
*   on school- and student-level                        *
*  Use rich panel model to construct past/future        *
*   OSS vars used to investigate exogeneity assumptions *
*                                                       *
*                                                       *
* Pgms:        reg02                                    *
* Orig data:   STUDTA/stuoss                            *
*              STUDTA/eog                               *
* Output:      reg02.tbl -> reg02.xlsx (ext)            *
*                                                       *
* LZhu 25feb                                            *
*-------------------------------------------------------*;
global STUDTA "/read_write/data/student";
global SCHDTA "/read_write/data/school";

*=======================================================*;
* 1. Set up data
*=======================================================*;
    clear;

    * CREATE SCHOOl-LEVEL DATA;
    * load student data collapse to school-by-year level and merge
eog;
    local STUVARS schyear mastid schoolid lea oss eds black hisp white
male;
    use `STUVARS' using $STUDTA/stuoss, clear;

    /* * create tmp dta file with school size vars;
    preserve;
    collapse (count) schpop=oss, by(schyear schoolid);
    gen schsmall = schpop                <= 196;
    gen schmid   = schpop > 196 & schpop <= 576;
    gen schlarge = schpop > 576                 ;
    label var schpop "School population";
    label var schsmall "Small school (<=25th %ile)";
    label var schmid   "Mid-size school (25-75th %ile)";
    label var schlarge "Large school (> 75th %ile)";
    save tmpdta/reg02_schpop, replace;
    restore; */

    * Note: eog data doesn't have schools, so need to do this merge
before getting
    *       school-level means of EOG data;
```

```
    merge 1:1 schyear mastid using $STUDTA/eog, nogen;

    * get school-level score variance to merge with school-level means
later;
    preserve;
    collapse (sd) rd_score_sd = rd_score
                  ma_score_sd = ma_score
                  rd_z_sd = rd_z
                  ma_z_sd = ma_z
                  , by(schyear schoolid);
    gen rd_score_var = rd_score_sd^2;
    gen ma_score_var = ma_score_sd^2;
    gen rd_z_var = rd_z_sd^2;
    gen ma_z_var = ma_z_sd^2;
    label var rd_score_var "Rd score variance (sch-schyear)";
    label var ma_score_var "Ma score variance (sch-schyear)";
    label var rd_z_var     "Rd z-score variance (sch-schyear)";
    label var ma_z_var     "Ma z-score variance (sch-schyear)";
    drop *_sd;
    save tmpdta/reg02_eogvar, replace;
    restore;

    * collapse to school-level, keeping only necessary vars;
    preserve;
    collapse (mean) rd_score_mean = rd_score
                    ma_score_mean = ma_score
                    rd_z_mean = rd_z
                    ma_z_mean = ma_z
                    oss_rate = oss
                    eds_rate = eds
                    bl_pct = black
                    hi_pct = hisp
                    wh_pct = white
                    , by(schyear schoolid lea);
    * create school-level z-scores;
    egen rd_mean = mean(rd_score_mean), by(schyear);
    egen rd_sd = sd(rd_score_mean), by(schyear);
    gen rd_z_sch = (rd_score_mean - rd_mean) / rd_sd;
    egen ma_mean = mean(ma_score_mean), by(schyear);
    egen ma_sd = sd(ma_score_mean), by(schyear);
    gen ma_z_sch = (ma_score_mean - ma_mean) / ma_sd;
    drop rd_mean rd_sd ma_mean ma_sd;
    label var rd_z_sch      "Read sch z-score (schyear)";
    label var ma_z_sch      "Math sch z-score (schyear)";
    label var rd_score_mean "Mean rd score (sch-schyear)";
    label var ma_score_mean "Mean ma score (sch-schyear)";
    label var rd_z_mean     "Mean rd z-score (sch-schyear)";
    label var ma_z_mean     "Mean ma z-score (sch-schyear)";
    label var oss_rate      "OSS rate";
    label var eds_rate      "EDS rate";
```

```
    label var bl_pct        "% Black";
    label var hi_pct        "% Hispanic";
    label var wh_pct        "% White";

    drop if missing(schoolid);

    * merge score variance data into school-level master data;
    merge 1:1 schyear schoolid using tmpdta/reg02_eogvar;
    keep if _merge==3;
    drop _merge;

    * save before defining desirable panel to merge student data with
full school data below;
    save tmpdta/reg02_scheogtmp, replace;

    /* * define desirable panel of schools: see before and after 2014;
    gen flagpre2014  = schyear <  14;
    gen flagpost2014 = schyear >= 14;
    bysort schoolid (schyear): egen schpre2014  = max(flagpre2014);
    bysort schoolid (schyear): egen schpost2014 = max(flagpost2014);
    gen schinpanel = schpre2014 & schpost2014;
    label var schinpanel "(1)School in panel";
    * drop if not in panel;
    keep if schinpanel;
    drop *pre2014 *post2014 schinpanel;

    * create schyear dummies and oss_rate interactions;
    forvalues Y = 2008/2019 {;
        gen yr`Y' = schyear == `Y' - 2000;
        gen yr`Y'_oss_rate = yr`Y' * oss_rate;
        label var yr`Y' "(1)`Y'";
        label var yr`Y'_oss_rate "yr`Y' * oss_rate";
    };

    * get locale, school size, and titlei data by merging;
    merge 1:1 schyear schoolid using $SCHDTA/schoss, keepus(locale
city town rural titlei) nogen;
    merge 1:1 schyear schoolid using tmpdta/reg02_schpop, nogen;

    * fill in titlei info for post-2017 data (using >=35% eds rate as
a proxy);
    * this is not the precise definition under Title I, but it is
close;
    * Schools are Title I if they have eds rate as high as LEA eds
rate OR;
    * (with LEA discretion) have eds_rate higher than 35%;
    replace titlei = eds_rate >= 0.35 if schyear > 17;

    drop if schyear < 8;
    compress;
```

```
    sort schyear schoolid;

    summ;
    save tmpdta/reg02_scheog, replace; */

    * CREATE STUDENT-LEVEL DATA;
    restore;
    * define potentially desirable panel (student had score before and
after 2014);
    gen flagrdpre2014  = (schyear <  14 & !missing(rd_score));
    gen flagrdpost2014 = (schyear >= 14 & !missing(rd_score));
    gen flagmapre2014  = (schyear <  14 & !missing(ma_score));
    gen flagmapost2014 = (schyear >= 14 & !missing(ma_score));
    bysort mastid (schyear): egen rdpre2014  = max(flagrdpre2014);
    bysort mastid (schyear): egen rdpost2014 = max(flagrdpost2014);
    bysort mastid (schyear): egen mapre2014  = max(flagmapre2014);
    bysort mastid (schyear): egen mapost2014 = max(flagmapost2014);
    gen rdinpanel = rdpre2014 & rdpost2014;
    gen mainpanel = mapre2014 & mapost2014;
    label var rdinpanel "(1)Rd score in panel";
    label var mainpanel "(1)Ma score in panel";
    * drop if not in either panel;
    keep if rdinpanel | mainpanel;
    drop *pre2014 *post2014;

    * construct past/future OSS variables for panel model;
    sort schyear mastid;
    bysort mastid (schyear): gen oss_m2 = oss[_n-2];
    bysort mastid (schyear): gen oss_m1 = oss[_n-1];
    bysort mastid (schyear): gen oss_p1 = oss[_n+1];
    bysort mastid (schyear): gen oss_p2 = oss[_n+2];
    keep if grade >= 3 & grade <= 8;
    summ oss*;

    * get school-level means from above dta. don't need score means/
var;
    merge m:1 schoolid schyear using tmpdta/reg02_scheogtmp, nogen;
    drop *_z_mean *_score_mean *_var;

    * create vars for FEs (schoolid-schyear groups);
    egen school_schyear = group(schoolid schyear);

    * create schyear dummies;
    forvalues Y = 2008/2019 {;
        gen yr`Y' = schyear == `Y' - 2000;
        gen yr`Y'_oss_rate = yr`Y' * oss_rate;
        label var yr`Y' "(1)`Y'";
        label var yr`Y'_oss_rate "yr`Y' * oss_rate";
    };
```

```
    label var oss "(1)OSS";

    compress;
    sort schyear schoolid;
    summ;

    save tmpdta/reg02_stueog, replace;




*=====================================================*;
* 2. Regressions
*=====================================================*;

    !echo "SUSPENSION AND TEST SCORES $S_DATE $S_TIME"  > reg02.tbl;
    !echo "Sample: Schools, Grade 3-8 Students (2008-2019)"    >>
reg02.tbl;

*=====================================================*;
* 2A. Panel models
*      EOG reading and math scores on
*       OSS, race, EDS rates, past/future OSS
*      School-by-schyear FEs
*=====================================================*;

local RACERATES bl_pct hi_pct wh_pct;

clear;
use tmpdta/reg02_stueog, clear;
    * RELABEL FOR LATEX STUFF;
    label var oss      "OSS$_t$";
    label var oss_m2   "OSS$_{t-2}$";
    label var oss_m1   "OSS$_{t-1}$";
    label var oss_p1   "OSS$_{t+1}$";
    label var oss_p2   "OSS$_{t+2}$";
    label var eds_rate "\% Econ. Disadv.";
    label var bl_pct   "\% Black";
    label var hi_pct   "\% Hispanic";
    label var wh_pct   "\% White";

    * Table 1: reading score and oss, all FE;
    * A: oss;
    eststo, title(m2):
        quietly reghdfe rd_z oss_m2                          if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(m1):
        quietly reghdfe rd_z        oss_m1                   if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
```

```
school_schyear);
    eststo, title(Past):
        quietly reghdfe rd_z oss_m2 oss_m1 oss               if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p1):
        quietly reghdfe rd_z                   oss_p1        if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p2):
        quietly reghdfe rd_z                           oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Future):
        quietly reghdfe rd_z               oss oss_p1 oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(All):
        quietly reghdfe rd_z oss_m2 oss_m1 oss oss_p1 oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);

    estout, title(Table 1A. Reading score and past and future OSS)
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl01a.tex,
        title(Reading score and past and future OSS\label{tbl01a})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 1A. Reading score and past and future OSS)
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;

    * B: on eds and race;
    eststo, title(m2):
        quietly reghdfe rd_z oss_m2                          eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(m1):
        quietly reghdfe rd_z        oss_m1                   eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Past):
        quietly reghdfe rd_z oss_m2 oss_m1 oss               eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
```

```
schyear);
    eststo, title(p1):
        quietly reghdfe rd_z                    oss_p1        eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p2):
        quietly reghdfe rd_z                            oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Future):
        quietly reghdfe rd_z               oss oss_p1 oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(All):
        quietly reghdfe rd_z oss_m2 oss_m1 oss oss_p1 oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 1B. Reading score and past and future OSS, eds
and race)
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl01b.tex,
        title(Reading score and past and future OSS, eds and
race\label{tbl01b})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 1B. Reading score and past and future OSS, eds and
race)
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;


    * Table 2: math score and oss, all FE;
    * A: oss;
    eststo, title(m2):
        quietly reghdfe ma_z oss_m2                           if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(m1):
        quietly reghdfe ma_z        oss_m1                    if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Past):
        quietly reghdfe ma_z oss_m2 oss_m1 oss                if
```

```
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p1):
        quietly reghdfe ma_z                    oss_p1        if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p2):
        quietly reghdfe ma_z                           oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Future):
        quietly reghdfe ma_z               oss oss_p1 oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(All):
        quietly reghdfe ma_z oss_m2 oss_m1 oss oss_p1 oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);

    estout, title(Table 2A. Math score and past and future OSS)
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl02a.tex,
        title(Math score and past and future OSS\label{tbl02a})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 2A. Math score and past and future OSS)
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;

    * B: on eds and race;
    eststo, title(m2):
        quietly reghdfe ma_z oss_m2                           eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(m1):
        quietly reghdfe ma_z        oss_m1                    eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Past):
        quietly reghdfe ma_z oss_m2 oss_m1 oss                eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p1):
        quietly reghdfe ma_z                    oss_p1        eds_rate
```

```
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p2):
        quietly reghdfe ma_z                          oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Future):
        quietly reghdfe ma_z               oss oss_p1 oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(All):
        quietly reghdfe ma_z oss_m2 oss_m1 oss oss_p1 oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 2B. Math score and past and future OSS, eds
and race)
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl02b.tex,
        title(Math score and past and future OSS, eds and
race\label{tbl02b})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 2B. Math score and past and future OSS, eds and
race)
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;


    * Table 3: reading score and oss, all FE (middle school);
    keep if grade >= 6;
    * A: oss;
    eststo, title(m2):
        quietly reghdfe rd_z oss_m2                           if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(m1):
        quietly reghdfe rd_z        oss_m1                    if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Past):
        quietly reghdfe rd_z oss_m2 oss_m1 oss                if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
```

```
    eststo, title(p1):
        quietly reghdfe rd_z                    oss_p1        if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p2):
        quietly reghdfe rd_z                           oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Future):
        quietly reghdfe rd_z               oss oss_p1 oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(All):
        quietly reghdfe rd_z oss_m2 oss_m1 oss oss_p1 oss_p2 if
rdinpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);

    estout, title(Table 3A. Reading score and past and future OSS
(middle school))
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl03a.tex,
        title(Reading score and past and future OSS (middle school)
\label{tbl03a})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 3A. Reading score and past and future OSS (middle
school))
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;

    * B: on eds and race;
    eststo, title(m2):
        quietly reghdfe rd_z oss_m2                          eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(m1):
        quietly reghdfe rd_z        oss_m1                   eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Past):
        quietly reghdfe rd_z oss_m2 oss_m1 oss               eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p1):
```

```
        quietly reghdfe rd_z                    oss_p1        eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p2):
        quietly reghdfe rd_z                           oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Future):
        quietly reghdfe rd_z               oss oss_p1 oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(All):
        quietly reghdfe rd_z oss_m2 oss_m1 oss oss_p1 oss_p2 eds_rate
`RACERATES' if rdinpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 3B. Reading score and past and future OSS, eds
and race (middle school))
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl03b.tex,
        title(Reading score and past and future OSS, eds and race
(middle school)\label{tbl03b})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 3B. Reading score and past and future OSS, eds and
race (middle school))
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;


    * Table 4: math score and oss, all FE (middle school);
    * A: oss;
    eststo, title(m2):
        quietly reghdfe ma_z oss_m2                           if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(m1):
        quietly reghdfe ma_z        oss_m1                    if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Past):
        quietly reghdfe ma_z oss_m2 oss_m1 oss                if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
```

```
    eststo, title(p1):
        quietly reghdfe ma_z                    oss_p1        if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(p2):
        quietly reghdfe ma_z                           oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(Future):
        quietly reghdfe ma_z               oss oss_p1 oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);
    eststo, title(All):
        quietly reghdfe ma_z oss_m2 oss_m1 oss oss_p1 oss_p2 if
mainpanel, vce(cluster mastid) absorb(mastid schoolid schyear
school_schyear);

    estout, title(Table 4A. Math score and past and future OSS (middle
school))
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl04a.tex,
        title(Math score and past and future OSS (middle school)
\label{tbl04a})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 4A. Math score and past and future OSS (middle
school))
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;

    * B: on eds and race;
    eststo, title(m2):
        quietly reghdfe ma_z oss_m2                           eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(m1):
        quietly reghdfe ma_z        oss_m1                    eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Past):
        quietly reghdfe ma_z oss_m2 oss_m1 oss                eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p1):
```

```
        quietly reghdfe ma_z                    oss_p1        eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(p2):
        quietly reghdfe ma_z                           oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(Future):
        quietly reghdfe ma_z               oss oss_p1 oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);
    eststo, title(All):
        quietly reghdfe ma_z oss_m2 oss_m1 oss oss_p1 oss_p2 eds_rate
`RACERATES' if mainpanel, vce(cluster mastid) absorb(mastid schoolid
schyear);

    estout, title(Table 4B. Math score and past and future OSS, eds
and race (middle school))
            order(oss_m2 oss_m1 oss oss_p1 oss_p2)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    esttab using tex/reg02/tbl04b.tex,
        title(Math score and past and future OSS, eds and race (middle
school)\label{tbl04b})
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        booktabs label replace;
    estout using reg02.tmp,
        title(Table 4B. Math score and past and future OSS, eds and
race (middle school))
        order(oss_m2 oss_m1 oss oss_p1 oss_p2)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type reg02.tmp >> reg02.tbl;
    eststo clear;



di "$S_TIME $S_DATE";

*------------------------------------------------------------*;
* Clean-up
*------------------------------------------------------------*;

    !del reg02.tmp;

exit;
```

```
#delimit ;
set linesize 125;
*-------------------------------------------------------*;
* Descriptive work on suspension data                   *
*  Big picture summary statistics to pin down           *
*   meaningful descriptive trends in the data           *
*  Means and sample sizes of different subgroups        *
*   of students                                         *
*    e.g. by grade, by schyear, for different types of  *
*    students or within different types of schools      *
*                                                       *
*                                                       *
* Pgms:        summ04                                   *
* Orig data:   STUDTA/susmast                           *
* Output:      summ04.tbl -> summ04.xlsx (ext)          *
*                                                       *
* LZhu 25jan                                            *
*-------------------------------------------------------*;
global STUDTA "/read_write/data/student";
global SCHDTA "/read_write/data/school";

di "$S_TIME $S_DATE";

*=======================================================*;
* 1. Set up data
*=======================================================*;
    clear;
    use $STUDTA/stuoss;

    keep if schyear >= 10;

    * create schyear+2000 var for plotting;
    gen schyearfull = schyear + 2000;
    label var schyearfull "Full school year";

    * create cohorts;
    gen cohortgr9 = schyearfull - grade + 9;
    label var cohortgr9 "Cohorts (schyear when gr9)";

    * create gradegrp categorical variable;
    gen gradegrp = "es";
    replace gradegrp = "ms" if grade >= 6 & grade <= 8;
    replace gradegrp = "gr9" if grade == 9;
    replace gradegrp = "gr10" if grade == 10;
    replace gradegrp = "gr11|12" if grade >= 11;
    label var gradegrp "Grade group (ES, MS, 9, 10, 11|12)";

    * create majority race categories of schools using wh_pct;
    gen minoritysch = wh_pct < 0.5;
    label var minoritysch "Majority-minority school";
```

```
    gen blacksch = bl_pct > 0.5;
    label var blacksch "Majority-black school";

    * create categorical vars [w/ descriptive values] from numeric
binary vars;
    gen male_cat = "male";
    replace male_cat = "female" if male == 0;
    label var male_cat "Male or female";
    gen eds_cat = "poor";
    replace eds_cat = "notpoor" if eds == 0;
    label var eds_cat "Economically disadvantaged status";
    gen titlei_cat = "titlei" if schyear <= 17;
    replace titlei_cat = "notitlei" if titlei == 0;
    label var titlei_cat "Title I school or not";
    gen minoritysch_cat = "minority" if schyear <= 17;
    replace minoritysch_cat = "notminority" if minoritysch == 0;
    label var minoritysch_cat "Majority-minority school or not";
    gen blacksch_cat = "black" if schyear <= 17;
    replace blacksch_cat = "notblack" if blacksch == 0;
    label var blacksch_cat "Majority-black school or not";


*=========================================================*;
* 2. Summary plots
*=========================================================*;

local GRDGRPS ms gr9 gr10 gr11|12;
/*
/*
* FULL SAMPLE;
* MEANS (FULL SAMPLE);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull);
    forvalues G = 6/12 {;
        quietly summ oss_pct if schyearfull==2019 & grade==`G';
        local oss19_`G' = r(mean);
    };
    twoway
        (line oss_pct schyearfull if grade == 6)
        (line oss_pct schyearfull if grade == 7)
        (line oss_pct schyearfull if grade == 8)
        (line oss_pct schyearfull if grade == 9)
        (line oss_pct schyearfull if grade == 10)
        (line oss_pct schyearfull if grade == 11)
        (line oss_pct schyearfull if grade == 12),
        text(`oss19_6' 2019 "Grade 6", place(e))
        text(`oss19_7' 2019 "Grade 7", place(e))
        text(`oss19_8' 2019 "Grade 8", place(e))
        text(`oss19_9' 2019 "Grade 9", place(e))
        text(`oss19_10' 2019 "Grade 10", place(e))
```

```
        text(`oss19_11' 2019 "Grade 11", place(e))
        text(`oss19_12' 2019 "Grade 12", place(e))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
        title("Mean OSS Rates by Grade Over Time") legend(off)
graphregion(margin(r+15));
    graph export "plot/summ04/all_mean.png", replace;
    twoway
        (line oss_pct schyearfull if grade == 6)
        (line oss_pct schyearfull if grade == 7)
        (line oss_pct schyearfull if grade == 8)
        (line oss_pct schyearfull if grade == 9)
        (line oss_pct schyearfull if grade == 10)
        (line oss_pct schyearfull if grade == 11)
        (line oss_pct schyearfull if grade == 12),
        legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade 9" 5
"Grade 10" 6 "Grade 11" 7 "Grade 12"))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
        title("Mean OSS Rates by Grade Over Time")
graphregion(margin(r+15));
    graph export "plot/summ04/all_mean_leg.png", replace;
    restore;

    * means by cohort;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull);

    twoway
        (line oss_pct schyearfull if cohortgr9 == 2011)
        (line oss_pct schyearfull if cohortgr9 == 2012)
        (line oss_pct schyearfull if cohortgr9 == 2013)
        (line oss_pct schyearfull if cohortgr9 == 2014)
        (line oss_pct schyearfull if cohortgr9 == 2015)
        (line oss_pct schyearfull if cohortgr9 == 2016)
        (line oss_pct schyearfull if cohortgr9 == 2017)
        (scatter oss_pct schyearfull if schyearfull == cohortgr9),
        legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015" 6
"2016" 7 "2017")
                subtitle("Schyear when Gr9"))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
```

```
        title("Mean OSS Rate by Cohort Over Time")
graphregion(margin(r+15));
    graph export "plot/summ04/all_mean_cohorts_leg.png", replace;
    restore;

* COUNTS (FULL SAMPLE);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull);
    forvalues G = 6/12 {;
        quietly summ oss_pct if schyearfull==2019 & grade==`G';
        local oss19_`G' = r(mean);
    };
    twoway
        (line oss_pct schyearfull if grade == 6)
        (line oss_pct schyearfull if grade == 7)
        (line oss_pct schyearfull if grade == 8)
        (line oss_pct schyearfull if grade == 9)
        (line oss_pct schyearfull if grade == 10)
        (line oss_pct schyearfull if grade == 11)
        (line oss_pct schyearfull if grade == 12),
        text(`oss19_6' 2019 "Grade 6", place(e))
        text(`oss19_7' 2019 "Grade 7", place(e))
        text(`oss19_8' 2019 "Grade 8", place(e))
        text(`oss19_9' 2019 "Grade 9", place(e))
        text(`oss19_10' 2019 "Grade 10", place(e))
        text(`oss19_11' 2019 "Grade 11", place(e))
        text(`oss19_12' 2019 "Grade 12", place(e))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
        title("Count by Grade Over Time") legend(off)
graphregion(margin(r+15));
    graph export "plot/summ04/all_count.png", replace;
    twoway
        (line oss_pct schyearfull if grade == 6)
        (line oss_pct schyearfull if grade == 7)
        (line oss_pct schyearfull if grade == 8)
        (line oss_pct schyearfull if grade == 9)
        (line oss_pct schyearfull if grade == 10)
        (line oss_pct schyearfull if grade == 11)
        (line oss_pct schyearfull if grade == 12),
        legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade 9" 5
"Grade 10" 6 "Grade 11" 7 "Grade 12"))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
        title("Count by Grade Over Time") graphregion(margin(r+15));
    graph export "plot/summ04/all_count_leg.png", replace;
    restore;

    * counts by cohort;
    preserve;
```

```
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull);

    twoway
        (line oss_pct schyearfull if cohortgr9 == 2011)
        (line oss_pct schyearfull if cohortgr9 == 2012)
        (line oss_pct schyearfull if cohortgr9 == 2013)
        (line oss_pct schyearfull if cohortgr9 == 2014)
        (line oss_pct schyearfull if cohortgr9 == 2015)
        (line oss_pct schyearfull if cohortgr9 == 2016)
        (line oss_pct schyearfull if cohortgr9 == 2017)
        (scatter oss_pct schyearfull if schyearfull == cohortgr9),
        legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015" 6
"2016" 7 "2017")
                subtitle("Schyear when Gr9"))
        xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
        title("Count by Cohort Over Time") graphregion(margin(r+15));
    graph export "plot/summ04/all_count_cohorts_leg.png", replace;
    restore;

* BY RACE;
local RACES asian black hisp white;

* MEANS (BY RACE);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull race_ethnic);

    foreach R in `RACES' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
race_ethnic=="`R'";
            local oss19_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 7 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 8 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 9 & race_ethnic ==
```

```
"`R'")
            (line oss_pct schyearfull if grade == 10 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 11 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 12 & race_ethnic ==
"`R'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`R' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 7 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 8 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 9 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 10 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 11 & race_ethnic ==
"`R'")
            (line oss_pct schyearfull if grade == 12 & race_ethnic ==
"`R'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`R' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_mean_leg.png", replace;
    };
    restore;

    * by race for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull race_ethnic);

    foreach G in `GRDGRPS' {;
        foreach R in `RACES' {;
```

```
            quietly summ oss_pct if schyearfull==2019 &
race_ethnic=="`R'" & gradegrp=="`G'";
            local oss19_`R' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if race_ethnic == "asian" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "hisp"  &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "white" &
gradegrp == "`G'"),
            text(`oss19_asian' 2019 "Asian", place(e))
            text(`oss19_black' 2019 "Black", place(e))
            text(`oss19_hisp' 2019 "Hispanic", place(e))
            text(`oss19_white' 2019 "White", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Race Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/race_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if race_ethnic == "asian" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "hisp"  &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "white" &
gradegrp == "`G'"),
            legend(order(1 "Asian" 2 "Black" 3 "Hispanic" 4 "White"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Race Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`G'_mean_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each race;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);
```

```
    collapse (mean) oss_pct, by(cohortgr9 schyearfull race_ethnic);

* TEMP!!;
local RACES asian black hisp white;
    foreach R in `RACES' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
race_ethnic == "`R'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
race_ethnic == "`R'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                    subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`R' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_mean_cohorts_leg.png",
replace;
    };
    restore;
/*
* COUNTS (BY RACE);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull race_ethnic);

    foreach R in `RACES' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
race_ethnic=="`R'";
            local oss19_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 7 &
race_ethnic=="`R'")
```

```
            (line oss_pct schyearfull if grade == 8 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 9 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 10 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 11 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 12 &
race_ethnic=="`R'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`R' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 7 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 8 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 9 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 10 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 11 &
race_ethnic=="`R'")
            (line oss_pct schyearfull if grade == 12 &
race_ethnic=="`R'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`R' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_count_leg.png", replace;
    };

    restore;

    * by race for each gradegrp;
    preserve;
```

```
    collapse (count) oss_pct, by(gradegrp schyearfull race_ethnic);

    foreach G in `GRDGRPS' {;
        foreach R in `RACES' {;
            quietly summ oss_pct if schyearfull==2019 &
race_ethnic=="`R'" & gradegrp=="`G'";
            local oss19_`R' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if race_ethnic == "asian" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "hisp" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "white" &
gradegrp == "`G'"),
            text(`oss19_asian' 2019 "Asian", place(e))
            text(`oss19_black' 2019 "Black", place(e))
            text(`oss19_hisp' 2019 "Hispanic", place(e))
            text(`oss19_white' 2019 "White", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Race Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/race_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if race_ethnic == "asian" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "hisp" &
gradegrp == "`G'")
            (line oss_pct schyearfull if race_ethnic == "white" &
gradegrp == "`G'"),
            legend(order(1 "Asian" 2 "Black" 3 "Hispanic" 4 "White"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Race Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`G'_count_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each race;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
```

```
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull race_ethnic);

    foreach R in `RACES' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
race_ethnic == "`R'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
race_ethnic == "`R'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
race_ethnic == "`R'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                    subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`R' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/race_`R'_count_cohorts_leg.png",
replace;
    };
    restore;
/*

* BY GENDER;
local GENDERS male female;

* MEANS (BY GENDER);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull male_cat);

    foreach S in `GENDERS' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
male_cat=="`S'";
            local oss19_`G' = r(mean);
```

```
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 7  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 8  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 9  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 10 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 11 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 12 & male_cat ==
"`S'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`S' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/gender_`S'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 7  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 8  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 9  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 10 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 11 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 12 & male_cat ==
"`S'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`S' students)")
graphregion(margin(r+15));
```

```
        graph export "plot/summ04/gender_`S'_mean_leg.png", replace;
    };
    restore;

    * by gender for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull male_cat);

    foreach G in `GRDGRPS' {;
        foreach S in `GENDERS' {;
            quietly summ oss_pct if schyearfull==2019 &
male_cat=="`S'" & gradegrp=="`G'";
            local oss19_`S' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if male_cat == "male" & gradegrp
== "`G'")
            (line oss_pct schyearfull if male_cat == "female" &
gradegrp == "`G'"),
            text(`oss19_male' 2019 "Male", place(e))
            text(`oss19_female' 2019 "Female", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Gender Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/gender_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if male_cat == "male" & gradegrp
== "`G'")
            (line oss_pct schyearfull if male_cat == "female" &
gradegrp == "`G'"),
            legend(order(1 "Male" 2 "Female"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Gender Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/gender_`G'_mean_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each gender;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);
```

```
    collapse (mean) oss_pct, by(cohortgr9 schyearfull male_cat);
* TEMP!!;
local GENDERS male female;
    foreach S in `GENDERS' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2012 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & male_cat
== "`S'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
male_cat == "`S'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                    subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`S' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/gender_`S'_mean_cohorts_leg.png",
replace;
    };
    restore;
/*
* COUNTS (BY GENDER);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull male_cat);

    foreach S in `GENDERS' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
male_cat=="`S'";
            local oss19_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 7  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 8  & male_cat ==
```

```
"`S'")
            (line oss_pct schyearfull if grade == 9  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 10 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 11 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 12 & male_cat ==
"`S'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`S' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/gender_`S'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 7  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 8  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 9  & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 10 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 11 & male_cat ==
"`S'")
            (line oss_pct schyearfull if grade == 12 & male_cat ==
"`S'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`S' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/gender_`S'_count_leg.png", replace;
    };

    restore;

    * by gender for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull male_cat);
```

```
    foreach G in `GRDGRPS' {;
        foreach S in `GENDERS' {;
            quietly summ oss_pct if schyearfull==2019 &
male_cat=="`S'" & gradegrp=="`G'";
            local oss19_`S' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if male_cat == "male" & gradegrp
== "`G'")
            (line oss_pct schyearfull if male_cat == "female" &
gradegrp == "`G'"),
            text(`oss19_male' 2019 "Male", place(e))
            text(`oss19_female' 2019 "Female", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Gender Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/gender_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if male_cat == "male" & gradegrp
== "`G'")
            (line oss_pct schyearfull if male_cat == "female" &
gradegrp == "`G'"),
            legend(order(1 "Male" 2 "Female"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Gender Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/gender_`G'_count_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each gender;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull male_cat);

    foreach S in `GENDERS' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & male_cat
== "`S'")
```

```
            (line oss_pct schyearfull if cohortgr9 == 2012 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & male_cat
== "`S'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & male_cat
== "`S'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
male_cat == "`S'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`S' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/gender_`S'_count_cohorts_leg.png",
replace;
    };
    restore;
/*

* BY EDS;
local EDS poor notpoor;

* MEANS (BY EDS);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull eds_cat);

    foreach E in `EDS' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
eds_cat=="`E'";
            local oss19_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 7  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 8  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 9  & eds_cat ==
"`E'")
```

```
            (line oss_pct schyearfull if grade == 10 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 11 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 12 & eds_cat ==
"`E'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`E' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 7  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 8  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 9  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 10 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 11 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 12 & eds_cat ==
"`E'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`E' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_mean_leg.png", replace;
    };
    restore;

    * by eds for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull eds_cat);

    foreach G in `GRDGRPS' {;
        foreach E in `EDS' {;
            quietly summ oss_pct if schyearfull==2019 & eds_cat=="`E'"
```

```
& gradegrp=="`G'";
            local oss19_`E' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if eds_cat == "poor" & gradegrp
== "`G'")
            (line oss_pct schyearfull if eds_cat == "notpoor" &
gradegrp == "`G'"),
            text(`oss19_poor' 2019 "Poor", place(e))
            text(`oss19_notpoor' 2019 "Not Poor", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Reduced Lunch Status Over Time
(`G' students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/eds_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if eds_cat == "poor" & gradegrp
== "`G'")
            (line oss_pct schyearfull if eds_cat == "notpoor" &
gradegrp == "`G'"),
            legend(order(1 "Poor" 2 "Not poor"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Reduced Lunch Status Over Time
(`G' students)") graphregion(margin(r+15));
        graph export "plot/summ04/eds_`G'_mean_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each eds;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull eds_cat);
*temp!!;
local EDS poor notpoor;
    foreach E in `EDS' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2012 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & eds_cat
```

```
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & eds_cat
== "`E'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
eds_cat == "`E'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`E' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_mean_cohorts_leg.png",
replace;
    };
    restore;
/*
* COUNTS (BY EDS);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull eds_cat);

    foreach E in `EDS' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2019 & grade==`G' &
eds_cat=="`E'";
            local oss19_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 7  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 8  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 9  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 10 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 11 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 12 & eds_cat ==
"`E'"),
            text(`oss19_6' 2019 "Grade 6", place(e))
            text(`oss19_7' 2019 "Grade 7", place(e))
```

```
            text(`oss19_8' 2019 "Grade 8", place(e))
            text(`oss19_9' 2019 "Grade 9", place(e))
            text(`oss19_10' 2019 "Grade 10", place(e))
            text(`oss19_11' 2019 "Grade 11", place(e))
            text(`oss19_12' 2019 "Grade 12", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`E' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 7  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 8  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 9  & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 10 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 11 & eds_cat ==
"`E'")
            (line oss_pct schyearfull if grade == 12 & eds_cat ==
"`E'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`E' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_count_leg.png", replace;
    };

    restore;

    * by eds for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull eds_cat);

    foreach G in `GRDGRPS' {;
        foreach E in `EDS' {;
            quietly summ oss_pct if schyearfull==2019 & eds_cat=="`E'"
& gradegrp=="`G'";
            local oss19_`E' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if eds_cat == "poor" & gradegrp
== "`G'")
```

```
            (line oss_pct schyearfull if eds_cat == "notpoor" &
gradegrp == "`G'"),
            text(`oss19_poor' 2019 "Poor", place(e))
            text(`oss19_notpoor' 2019 "Not poor", place(e))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Reduced Lunch Status Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/eds_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if eds_cat == "poor" & gradegrp
== "`G'")
            (line oss_pct schyearfull if eds_cat == "notpoor" &
gradegrp == "`G'"),
            legend(order(1 "Poor" 2 "Not poor"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Reduced Lunch Status Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/eds_`G'_count_leg.png", replace;
    };
    restore;
*/
    * by cohorts for each eds;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 18) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull eds_cat);

    foreach E in `EDS' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2012 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & eds_cat
== "`E'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & eds_cat
```

```
== "`E'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
eds_cat == "`E'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2019, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`E' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/eds_`E'_count_cohorts_leg.png",
replace;
    };
    restore;



keep if schyear <= 17;

* BY TITLE I;
local TITLEI titlei notitlei;

* MEANS (BY TITLE I SCHOOL STATUS);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull titlei_cat);

    foreach T in `TITLEI' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
titlei_cat=="`T'";
            local oss17_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 7  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 8  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 9  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 10 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 11 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 12 & titlei_cat ==
"`T'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
```

```
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`T' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`T'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 7  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 8  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 9  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 10 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 11 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 12 & titlei_cat ==
"`T'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`T' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`T'_mean_leg.png", replace;
    };
    restore;

    * by titlei for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull titlei_cat);

    foreach G in `GRDGRPS' {;
        foreach T in `TITLEI' {;
            quietly summ oss_pct if schyearfull==2017 &
titlei_cat=="`T'" & gradegrp=="`G'";
            local oss17_`T' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if titlei_cat == "titlei" &
gradegrp == "`G'")
            (line oss_pct schyearfull if titlei_cat == "notitlei" &
```

```
gradegrp == "`G'"),
            text(`oss17_titlei' 2017 "Title I", place(e))
            text(`oss17_notitlei' 2017 "Not Title I", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Title I Status Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if titlei_cat == "titlei" &
gradegrp == "`G'")
            (line oss_pct schyearfull if titlei_cat == "notitlei" &
gradegrp == "`G'"),
            legend(order(1 "Title I" 2 "Not Title I"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Title I Status Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`G'_mean_leg.png", replace;
    };
    restore;

    * by cohorts for each titlei;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull titlei_cat);

    foreach T in `TITLEI' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
titlei_cat == "`T'")
```

```
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
titlei_cat == "`T'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`T' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`T'_mean_cohorts_leg.png",
replace;
    };
    restore;

* COUNTS (BY TITLE I SCHOOL STATUS);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull titlei_cat);

    foreach T in `TITLEI' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
titlei_cat=="`T'";
            local oss17_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 7  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 8  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 9  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 10 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 11 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 12 & titlei_cat ==
"`T'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`T' schools)")
legend(off) graphregion(margin(r+15));
```

```
        graph export "plot/summ04/titlei_`T'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 7  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 8  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 9  & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 10 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 11 & titlei_cat ==
"`T'")
            (line oss_pct schyearfull if grade == 12 & titlei_cat ==
"`T'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`T' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`T'_count_leg.png", replace;
    };

    restore;

    * by titlei for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull titlei_cat);

    foreach G in `GRDGRPS' {;
        foreach T in `TITLEI' {;
            quietly summ oss_pct if schyearfull==2017 &
titlei_cat=="`T'" & gradegrp=="`G'";
            local oss17_`T' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if titlei_cat == "titlei" &
gradegrp == "`G'")
            (line oss_pct schyearfull if titlei_cat == "notitlei" &
gradegrp == "`G'"),
            text(`oss17_titlei' 2017 "Title I", place(e))
            text(`oss17_notitlei' 2017 "Not Title I", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Title I School Status Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`G'_count.png", replace;
```

```
        twoway
            (line oss_pct schyearfull if titlei_cat == "titlei" &
gradegrp == "`G'")
            (line oss_pct schyearfull if titlei_cat == "notitlei" &
gradegrp == "`G'"),
            legend(order(1 "Title I" 2 "Not Title I"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Title I School Status Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`G'_count_leg.png", replace;
    };
    restore;

    * by cohorts for each titlei;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull titlei_cat);

    foreach T in `TITLEI' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
titlei_cat == "`T'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
titlei_cat == "`T'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
titlei_cat == "`T'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`T' schools)")
```

```
graphregion(margin(r+15));
        graph export "plot/summ04/titlei_`T'_count_cohorts_leg.png",
replace;
    };
    restore;


* BY MINORITY SCHOOL STATUS;
local MINSCH minority notminority;

* MEANS (BY MINORITY SCHOOL STATUS);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull minoritysch_cat);

    foreach M in `MINSCH' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
minoritysch_cat=="`M'";
            local oss17_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 7  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 8  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 9  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 10 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 11 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 12 & minoritysch_cat
== "`M'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`M' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & minoritysch_cat
```

```
== "`M'")
            (line oss_pct schyearfull if grade == 7  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 8  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 9  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 10 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 11 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 12 & minoritysch_cat
== "`M'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`M' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_mean_leg.png", replace;
    };
    restore;

    * by minoritysch for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull minoritysch_cat);

    foreach G in `GRDGRPS' {;
        foreach M in `MINSCH' {;
            quietly summ oss_pct if schyearfull==2017 &
minoritysch_cat=="`M'" & gradegrp=="`G'";
            local oss17_`M' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if minoritysch_cat == "minority"
& gradegrp == "`G'")
            (line oss_pct schyearfull if minoritysch_cat ==
"notminority" & gradegrp == "`G'"),
            text(`oss17_minority' 2017 "Minority School", place(e))
            text(`oss17_notminority' 2017 "Not Minority School",
place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Minority School Status Over Time
(`G' students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/min_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if minoritysch_cat == "minority"
& gradegrp == "`G'")
```

```
            (line oss_pct schyearfull if minoritysch_cat ==
"notminority" & gradegrp == "`G'"),
            legend(order(1 "Minority School" 2 "Not Minority School"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Minority School Status Over Time
(`G' students)") graphregion(margin(r+15));
        graph export "plot/summ04/min_`G'_mean_leg.png", replace;
    };
    restore;

    * by cohorts for each minoritysch;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull
minoritysch_cat);

    foreach M in `MINSCH' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
minoritysch_cat == "`M'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
minoritysch_cat == "`M'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`M' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_mean_cohorts_leg.png",
```

```
replace;
    };
    restore;

* COUNTS (BY MINORITY SCHOOL STATUS);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull minoritysch_cat);

    foreach M in `MINSCH' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
minoritysch_cat=="`M'";
            local oss17_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 7  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 8  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 9  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 10 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 11 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 12 & minoritysch_cat
== "`M'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`M' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 7  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 8  & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 9  & minoritysch_cat
== "`M'")
```

```
            (line oss_pct schyearfull if grade == 10 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 11 & minoritysch_cat
== "`M'")
            (line oss_pct schyearfull if grade == 12 & minoritysch_cat
== "`M'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`M' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_count_leg.png", replace;
    };

    restore;

    * by minoritysch for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull
minoritysch_cat);

    foreach G in `GRDGRPS' {;
        foreach M in `MINSCH' {;
            quietly summ oss_pct if schyearfull==2017 &
minoritysch_cat=="`M'" & gradegrp=="`G'";
            local oss17_`M' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if minoritysch_cat == "minority"
& gradegrp == "`G'")
            (line oss_pct schyearfull if minoritysch_cat ==
"notminority" & gradegrp == "`G'"),
            text(`oss17_minority' 2017 "Minority School", place(e))
            text(`oss17_notminority' 2017 "Not Minority School",
place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Minority School Status Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/min_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if minoritysch_cat == "minority"
& gradegrp == "`G'")
            (line oss_pct schyearfull if minoritysch_cat ==
"notminority" & gradegrp == "`G'"),
            legend(order(1 "Minority School" 2 "Not Minority School"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
```

```
            title("Count by Minority School Status Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/min_`G'_count_leg.png", replace;
    };
    restore;

    * by cohorts for each minoritysch;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull
minoritysch_cat);

    foreach M in `MINSCH' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
minoritysch_cat == "`M'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
minoritysch_cat == "`M'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
minoritysch_cat == "`M'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`M' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/min_`M'_count_cohorts_leg.png",
replace;
    };
    restore;
```

```
* BY MAJORITY-BLACK SCHOOL STATUS;
local BLKSCH black notblack;

* MEANS (BY MAJORITY-BLACK SCHOOL STATUS);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull blacksch_cat);

    foreach B in `BLKSCH' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
blacksch_cat=="`B'";
            local oss17_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 7  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 8  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 9  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 10 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 11 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 12 & blacksch_cat ==
"`B'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`B' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 7  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 8  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 9  & blacksch_cat ==
"`B'")
```

```
            (line oss_pct schyearfull if grade == 10 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 11 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 12 & blacksch_cat ==
"`B'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`B' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_mean_leg.png", replace;
    };
    restore;

    * by blacksch for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull blacksch_cat);

    foreach G in `GRDGRPS' {;
        foreach B in `BLKSCH' {;
            quietly summ oss_pct if schyearfull==2017 &
blacksch_cat=="`B'" & gradegrp=="`G'";
            local oss17_`B' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if blacksch_cat == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if blacksch_cat == "notblack" &
gradegrp == "`G'"),
            text(`oss17_black' 2017 "Maj-Black School", place(e))
            text(`oss17_notblack' 2017 "Not Maj-Black School",
place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Maj-Black School Status Over Time
(`G' students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/blk_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if blacksch_cat == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if blacksch_cat == "notblack" &
gradegrp == "`G'"),
            legend(order(1 "Maj-Black School" 2 "Not Maj-Black
School"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Maj-Black School Status Over Time
```

```
(`G' students)") graphregion(margin(r+15));
        graph export "plot/summ04/blk_`G'_mean_leg.png", replace;
    };
    restore;

    * by cohorts for each blacksch;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull blacksch_cat);

    foreach B in `BLKSCH' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
blacksch_cat == "`B'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
blacksch_cat == "`B'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`B' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_mean_cohorts_leg.png",
replace;
    };
    restore;

* COUNTS (BY MAJORITY-BLACK SCHOOL STATUS);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull blacksch_cat);
```

```
    foreach B in `BLKSCH' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
blacksch_cat=="`B'";
            local oss17_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 7  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 8  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 9  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 10 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 11 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 12 & blacksch_cat ==
"`B'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`B' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 7  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 8  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 9  & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 10 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 11 & blacksch_cat ==
"`B'")
            (line oss_pct schyearfull if grade == 12 & blacksch_cat ==
"`B'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
```

```
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`B' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_count_leg.png", replace;
    };

    restore;

    * by blacksch for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull blacksch_cat);

    foreach G in `GRDGRPS' {;
        foreach B in `BLKSCH' {;
            quietly summ oss_pct if schyearfull==2017 &
blacksch_cat=="`B'" & gradegrp=="`G'";
            local oss17_`B' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if blacksch_cat == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if blacksch_cat == "notblack" &
gradegrp == "`G'"),
            text(`oss17_black' 2017 "Maj-Black School", place(e))
            text(`oss17_notblack' 2017 "Not Maj-Black School",
place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Maj-Black School Status Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/blk_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if blacksch_cat == "black" &
gradegrp == "`G'")
            (line oss_pct schyearfull if blacksch_cat == "notblack" &
gradegrp == "`G'"),
            legend(order(1 "Maj-Black School" 2 "Not Maj-Black
School"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Maj-Black School Status Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/blk_`G'_count_leg.png", replace;
    };
    restore;

    * by cohorts for each blacksch;
```

```
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull blacksch_cat);

    foreach B in `BLKSCH' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
blacksch_cat == "`B'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
blacksch_cat == "`B'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
blacksch_cat == "`B'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`B' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/blk_`B'_count_cohorts_leg.png",
replace;
    };
    restore;


* BY SCHOOL LOCALE;
local LOCALE city suburb town rural;

* MEANS (BY SCHOOL LOCALE);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull locale);

    foreach L in `LOCALE' {;
```

```
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
locale=="`L'";
            local oss17_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 7  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 8  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 9  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 10 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 11 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 12 & locale ==
"`L'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`L' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 7  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 8  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 9  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 10 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 11 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 12 & locale ==
"`L'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
```

```
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`L' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_mean_leg.png", replace;
    };
    restore;

    * by locale for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull locale);

    foreach G in `GRDGRPS' {;
        foreach L in `LOCALE' {;
            quietly summ oss_pct if schyearfull==2017 & locale=="`L'"
& gradegrp=="`G'";
            local oss17_`L' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if locale == "city" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "suburb" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "town" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "rural" & gradegrp
== "`G'"),
            text(`oss17_city' 2017 "City", place(e))
            text(`oss17_suburb' 2017 "Suburb", place(e))
            text(`oss17_town' 2017 "Town", place(e))
            text(`oss17_rural' 2017 "Rural", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by School Locale Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/loc_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if locale == "city" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "suburb" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "town" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "rural" & gradegrp
== "`G'"),
            legend(order(1 "City" 2 "Suburb" 3 "Town" 4 "rural"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by School Locale Over Time (`G'
```

```
students)") graphregion(margin(r+15));
        graph export "plot/summ04/loc_`G'_mean_leg.png", replace;
    };
    restore;

    * by cohorts for each locale;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull locale);

    foreach L in `LOCALE' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2012 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & locale ==
"`L'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
locale == "`L'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`L' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_mean_cohorts_leg.png",
replace;
    };
    restore;

* COUNTS (BY SCHOOL LOCALE);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull locale);
```

```
    foreach L in `LOCALE' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
locale=="`L'";
            local oss17_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 7  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 8  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 9  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 10 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 11 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 12 & locale ==
"`L'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`L' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 7  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 8  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 9  & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 10 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 11 & locale ==
"`L'")
            (line oss_pct schyearfull if grade == 12 & locale ==
"`L'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
```

```
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`L' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_count_leg.png", replace;
    };

    restore;

    * by locale for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull locale);

    foreach G in `GRDGRPS' {;
        foreach L in `LOCALE' {;
            quietly summ oss_pct if schyearfull==2017 & locale=="`L'"
& gradegrp=="`G'";
            local oss17_`L' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if locale == "city" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "suburb" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "town" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "rural" & gradegrp
== "`G'"),
            text(`oss17_city' 2017 "City", place(e))
            text(`oss17_suburb' 2017 "Suburb", place(e))
            text(`oss17_town' 2017 "Town", place(e))
            text(`oss17_rural' 2017 "Rural", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by School Locale Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/loc_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if locale == "city" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "suburb" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "town" & gradegrp
== "`G'")
            (line oss_pct schyearfull if locale == "rural" & gradegrp
== "`G'"),
            legend(order(1 "City" 2 "Suburb" 3 "Town" 4 "Rural"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
```

```
ytitle("Count")
            title("Count by School Locale Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/loc_`G'_count_leg.png", replace;
    };
    restore;

    * by cohorts for each locale;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull locale);

    foreach L in `LOCALE' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2012 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2013 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2014 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2015 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2016 & locale ==
"`L'")
            (line oss_pct schyearfull if cohortgr9 == 2017 & locale ==
"`L'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
locale == "`L'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`L' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/loc_`L'_count_cohorts_leg.png",
replace;
    };
    restore;
```

```
* BY SCHOOL CATEGORY & SIZE;
local CATSIZE smallpub midpub largepub magnet charter;

* MEANS (BY SCHOOL CATEGORY & SIZE);
    preserve;
    collapse (mean) oss_pct, by(grade schyearfull schcatsize);

    foreach C in `CATSIZE' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
schcatsize=="`C'";
            local oss17_`G' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if grade == 6  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 7  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 8  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 9  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 10 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 11 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 12 & schcatsize ==
"`C'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`C' schools)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/cat_`C'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 7  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 8  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 9  & schcatsize ==
"`C'")
```

```
            (line oss_pct schyearfull if grade == 10 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 11 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 12 & schcatsize ==
"`C'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by Grade Over Time (`C' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/cat_`C'_mean_leg.png", replace;
    };
    restore;
*/
*temp!!;
keep if schyear <= 17;
local CATSIZE smallpub midpub largepub magnet charter;
    * by schcatsize for each gradegrp;
    preserve;
    collapse (mean) oss_pct, by(gradegrp schyearfull schcatsize);

    foreach G in `GRDGRPS' {;
        foreach C in `CATSIZE' {;
            quietly summ oss_pct if schyearfull==2017 &
schcatsize=="`C'" & gradegrp=="`G'";
            local oss17_`C' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if schcatsize == "smallpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "midpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "largepub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "magnet" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "charter" &
gradegrp == "`G'"),
            text(`oss17_smallpub' 2017 "Small Public", place(e))
            text(`oss17_midpub' 2017 "Mid-sized Public", place(e))
            text(`oss17_largepub' 2017 "Large Public", place(e))
            text(`oss17_magnet' 2017 "Magnet", place(e))
            text(`oss17_charter' 2017 "Charter", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by School Category Over Time (`G'
students)") legend(off) graphregion(margin(r+15));
```

```
        graph export "plot/summ04/cat_`G'_mean.png", replace;
        twoway
            (line oss_pct schyearfull if schcatsize == "smallpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "midpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "largepub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "magnet" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "charter" &
gradegrp == "`G'"),
            legend(order(1 "Small Public" 2 "Mid-sized Public" 3
"Large Public" 4 "Magnet" 5 "Charter"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rates by School Category Over Time (`G'
students)") graphregion(margin(r+15));
        graph export "plot/summ04/cat_`G'_mean_leg.png", replace;
    };
    restore;

    * by cohorts for each schcatsize;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (mean) oss_pct, by(cohortgr9 schyearfull schcatsize);

    foreach C in `CATSIZE' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2014 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
schcatsize == "`C'")
```

```
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
schcatsize == "`C'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Mean OSS Rate")
            title("Mean OSS Rate by Cohort Over Time (`C' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/cat_`C'_mean_cohorts_leg.png",
replace;
    };
    restore;

* COUNTS (BY SCHOOL CATEGORY & SIZE);
    preserve;
    collapse (count) oss_pct, by(grade schyearfull schcatsize);

    foreach C in `CATSIZE' {;
        forvalues G = 6/12 {;
            quietly summ oss_pct if schyearfull==2017 & grade==`G' &
schcatsize=="`C'";
            local oss17_`G' = r(mean);
        };
        twoway
            (line oss_pct schyearfull if grade == 6  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 7  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 8  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 9  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 10 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 11 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 12 & schcatsize ==
"`C'"),
            text(`oss17_6' 2017 "Grade 6", place(e))
            text(`oss17_7' 2017 "Grade 7", place(e))
            text(`oss17_8' 2017 "Grade 8", place(e))
            text(`oss17_9' 2017 "Grade 9", place(e))
            text(`oss17_10' 2017 "Grade 10", place(e))
            text(`oss17_11' 2017 "Grade 11", place(e))
            text(`oss17_12' 2017 "Grade 12", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`C' schools)")
legend(off) graphregion(margin(r+15));
```

```
        graph export "plot/summ04/cat_`C'_count.png", replace;
        twoway
            (line oss_pct schyearfull if grade == 6  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 7  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 8  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 9  & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 10 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 11 & schcatsize ==
"`C'")
            (line oss_pct schyearfull if grade == 12 & schcatsize ==
"`C'"),
            legend(order(1 "Grade 6" 2 "Grade 7" 3 "Grade 8" 4 "Grade
9" 5 "Grade 10" 6 "Grade 11" 7 "Grade 12"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Grade Over Time (`C' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/cat_`C'_count_leg.png", replace;
    };

    restore;

    * by schcatsize for each gradegrp;
    preserve;
    collapse (count) oss_pct, by(gradegrp schyearfull schcatsize);

    foreach G in `GRDGRPS' {;
        foreach C in `CATSIZE' {;
            quietly summ oss_pct if schyearfull==2017 &
schcatsize=="`C'" & gradegrp=="`G'";
            local oss17_`C' = r(mean);
        };

        twoway
            (line oss_pct schyearfull if schcatsize == "smallpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "midpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "largepub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "magnet" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "charter" &
gradegrp == "`G'"),
            text(`oss17_smallpub' 2017 "Small Public", place(e))
```

```
            text(`oss17_midpub' 2017 "Mid-sized Public", place(e))
            text(`oss17_largepub' 2017 "Large Public", place(e))
            text(`oss17_magnet' 2017 "Magnet", place(e))
            text(`oss17_charter' 2017 "Charter", place(e))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by School Category Over Time (`G' students)")
legend(off) graphregion(margin(r+15));
        graph export "plot/summ04/cat_`G'_count.png", replace;
        twoway
            (line oss_pct schyearfull if schcatsize == "smallpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "midpub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "largepub" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "magnet" &
gradegrp == "`G'")
            (line oss_pct schyearfull if schcatsize == "charter" &
gradegrp == "`G'"),
            legend(order(1 "Small Public" 2 "Mid-sized Public" 3
"Large Public" 4 "Magnet" 5 "Charter"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by School Category Over Time (`G' students)")
graphregion(margin(r+15));
        graph export "plot/summ04/cat_`G'_count_leg.png", replace;
    };
    restore;

    * by cohorts for each schcatsize;
    preserve;
    keep if (cohortgr9 == 2011 & schyear <= 14) |
            (cohortgr9 == 2012 & schyear <= 15) |
            (cohortgr9 == 2013 & schyear <= 16) |
            (cohortgr9 == 2014 & schyear <= 17) |
            (cohortgr9 == 2015 & schyear >= 9 & schyear <= 17) |
            (cohortgr9 == 2016 & schyear >= 10) |
            (cohortgr9 == 2017 & schyear >= 11);

    collapse (count) oss_pct, by(cohortgr9 schyearfull schcatsize);

    foreach C in `CATSIZE' {;
        twoway
            (line oss_pct schyearfull if cohortgr9 == 2011 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2012 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2013 &
schcatsize == "`C'")
```

```
            (line oss_pct schyearfull if cohortgr9 == 2014 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2015 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2016 &
schcatsize == "`C'")
            (line oss_pct schyearfull if cohortgr9 == 2017 &
schcatsize == "`C'")
            (scatter oss_pct schyearfull if schyearfull == cohortgr9 &
schcatsize == "`C'"),
            legend(order(1 "2011" 2 "2012" 3 "2013" 4 "2014" 5 "2015"
6 "2016" 7 "2017")
                   subtitle("Schyear when Gr9"))
            xlabel(2010(1)2017, angle(45)) xtitle("School Year")
ytitle("Count")
            title("Count by Cohort Over Time (`C' schools)")
graphregion(margin(r+15));
        graph export "plot/summ04/cat_`C'_count_cohorts_leg.png",
replace;
    };
    restore;

di "$S_DATE $S_TIME";

*=====================================================*;
* 3. Summary tables
*=====================================================*;
clear;
use $STUDTA/stuoss;

    keep if schyear >= 10;

    * create oss vars for each schoolyear for use in tabstat;
    forvalues Y = 10/19 {;
        gen oss_pct`Y' = oss_pct if schyear==`Y';
        label var oss_pct`Y' "oss_pct in schyear `Y'";
    };

    * create majority race categories of schools using wh_pct;
    gen minoritysch = wh_pct < 0.5;
    label var minoritysch "Majority-minority school";
    gen blacksch = bl_pct > 0.5;
    label var blacksch "Majority-black school";

local OSSYRS19 /*oss_pct8 oss_pct9*/ oss_pct10 oss_pct11 oss_pct12
oss_pct13 oss_pct14 oss_pct15 oss_pct16 oss_pct17 oss_pct18 oss_pct19;
local OSSYRS17 /*oss_pct8 oss_pct9*/ oss_pct10 oss_pct11 oss_pct12
oss_pct13 oss_pct14 oss_pct15 oss_pct16 oss_pct17;

quietly log using summ04.lst, replace text;
```

```
    sort grade;
    di "FULL SAMPLE";
        di "MEANS (FULL SAMPLE):";
            tabstat `OSSYRS19', stat(mean)  by(grade) format(%8.2f);
        di "COUNT (FULL SAMPLE):";
            tabstat `OSSYRS19', stat(count) by(grade) format(%8.0fc);
        di "COUNT & MEAN (FULL SAMPLE):";
            tabstat `OSSYRS19', stat(mean count) by(grade);

    sort race_ethnic grade;
    di "BY RACE";
        di "MEANS (BY RACE):";
            by race_ethnic: tabstat `OSSYRS19', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY RACE):";
            by race_ethnic: tabstat `OSSYRS19', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY RACE):";
            by race_ethnic: tabstat `OSSYRS19', stat(mean count)
by(grade);

    sort male grade;
    di "BY GENDER";
        di "MEANS (BY GENDER):";
            by male: tabstat `OSSYRS19', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY GENDER):";
            by male: tabstat `OSSYRS19', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY GENDER):";
            by male: tabstat `OSSYRS19', stat(mean count) by(grade);

    sort eds grade;
    di "BY EDS";
        di "MEANS (BY EDS):";
            by eds: tabstat `OSSYRS19', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY EDS):";
            by eds: tabstat `OSSYRS19', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY EDS):";
            by eds: tabstat `OSSYRS19', stat(mean count) by(grade);

    sort titlei grade;
    di "BY TITLE I SCHOOL STATUS";
        di "MEANS (BY TITLE I SCHOOL STATUS):";
            by titlei: tabstat `OSSYRS17', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY TITLE I SCHOOL STATUS):";
```

```
            by titlei: tabstat `OSSYRS17', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY TITLE I SCHOOL STATUS):";
            by titlei: tabstat `OSSYRS17', stat(mean count) by(grade);

    sort minoritysch grade;
    di "BY MINORITY SCHOOL STATUS";
        di "MEANS (BY MINORITY SCHOOL STATUS):";
            by minoritysch: tabstat `OSSYRS17', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY MINORITY SCHOOL STATUS):";
            by minoritysch: tabstat `OSSYRS17', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY MINORITY SCHOOL STATUS):";
            by minoritysch: tabstat `OSSYRS17', stat(mean count)
by(grade);

    sort blacksch grade;
    di "BY MAJORITY-BLACK SCHOOL STATUS";
        di "MEANS (BY MAJORITY-BLACK SCHOOL STATUS):";
            by blacksch: tabstat `OSSYRS17', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY MAJORITY-BLACK SCHOOL STATUS):";
            by blacksch: tabstat `OSSYRS17', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY MAJORITY-BLACK SCHOOL STATUS):";
            by blacksch: tabstat `OSSYRS17', stat(mean count)
by(grade);

    sort locale grade;
    di "BY SCHOOL LOCALE";
        di "MEANS (BY SCHOOL LOCALE):";
            by locale: tabstat `OSSYRS17', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY SCHOOL LOCALE):";
            by locale: tabstat `OSSYRS17', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY SCHOOL LOCALE):";
            by locale: tabstat `OSSYRS17', stat(mean count) by(grade);

    sort schcatsize grade;
    di "BY SCHOOL CATEGORY & SIZE";
        di "MEANS (BY SCHOOL CATEGORY & SIZE):";
            by schcatsize: tabstat `OSSYRS17', stat(mean) by(grade)
format(%8.2f);
        di "COUNT (BY SCHOOL CATEGORY & SIZE):";
            by schcatsize: tabstat `OSSYRS17', stat(count) by(grade)
format(%8.0fc);
        di "COUNT & MEAN (BY SCHOOL CATEGORY & SIZE):";
            by schcatsize: tabstat `OSSYRS17', stat(mean count)
```

```
by(grade);


quietly log close;
di "$S_DATE $S_TIME";
exit;

    * SEE WHAT IS DONE FOR SUM STATS IN ROUSE;
    /* di "$S_DATE $S_TIME";
    !echo "SUSPENSION $S_DATE $S_TIME"  > summ04.tbl;
    !echo "Sample: Schools, Grade 3-12 Students (2008-2019)"    >>
summ04.tbl; */

*=========================================================*;
* 3. Regressions
*=========================================================*;

    local RACEVARS /*member*/ bl_pct hi_pct wh_pct as_pct;
    * omitted var: am_pct;
    local SIZEVARS schmid schlarge;
    * omitted var: schsmall;
    local LOCVARS city suburb rural;
    * omitted var: town;
    local CATVARS chartr magnet;
    * omitted var: public school;
    local TITLEIVARS taselig_notas taselig_tas swpelig_tas
swpelig_nopro swpelig_swp;
    * omitted var: titlei_noelig;

*=========================================================*;
* 2B. Student-level regressions: OSS
*      OSS% on demog by year for
*       full sample
*       grade-by-grade
*=========================================================*;
    /* clear;
    use "$STUDTA/stu_oss"; */
    local DEMVARS black_m black_f
                  hisp_m hisp_f
                  asian_m asian_f
                  white_m white_f
                  amind_m amind_f
                  pacif_m pacif_f
                  multi_m multi_f
                 ;

    local GRDVARS gr3 gr4 gr5 gr6 gr7 gr8 gr9 gr10 gr11 gr12;

    gen eds_eds_rate = eds * eds_rate;
    label var eds_eds_rate "eds*eds_rate";
```

```
    local EDSVARS eds eds_rate eds_eds_rate titlei;

    * Table 1: Mean OSS prob by grade;
    * A: Full sample;
    forvalues Y = 8/19 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y', nocons
vce(cluster schoolid);
    };

    estout, title(Table 1A. Mean OSS probability by grade, by schyear)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 1A. Mean OSS probability by grade, by schyear)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * B: Small public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y' & schsmall
& !magnet & !chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 1B. Mean OSS probability by grade, by schyear
(small (bottom 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 1B. Mean OSS probability by grade, by schyear
(small (bottom 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * C: Mid-sized public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y' & schmid
& !magnet & !chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 1C. Mean OSS probability by grade, by schyear
(mid-sized (middle 50% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
```

```
    estout using summ04.tmp,
        title(Table 1C. Mean OSS probability by grade, by schyear
(mid-sized (middle 50% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * D: large public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y' & schlarge
& !magnet & !chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 1D. Mean OSS probability by grade, by schyear
(large (top 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 1D. Mean OSS probability by grade, by schyear
(large (top 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * E: Magnet schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y' & magnet,
nocons vce(cluster schoolid);
    };

    estout, title(Table 1E. Mean OSS probability by grade, by schyear
(magnet schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 1E. Mean OSS probability by grade, by schyear
(magnet schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * F: Charter schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `GRDVARS' if schyear == `Y' & chartr,
```

```
nocons vce(cluster schoolid);
    };

    estout, title(Table 1F. Mean OSS probability by grade, by schyear
(charter schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 1F. Mean OSS probability by grade, by schyear
(charter schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

di "$S_DATE $S_TIME";
    * Table 2: Mean OSS prob by race;
    * A. full sample;
    forvalues Y = 8/19 {;
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y', nocons vce(cluster schoolid);
    };

    estout, title(Table 2A. Mean OSS probability by race, by schyear)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2A. Mean OSS probability by race, by schyear)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;

    local cv`Y' = sqrt(log(e(N)));
    local df`Y' = e(N_clust)-1;
    local lvl`Y' = (1 - 2 *ttail(`df`Y'', `cv`Y''))*100;
    di "Critical value: `cv`Y''";
    di "Degrees of freedom: `df`Y''";
    di "Confidence level: `lvl`Y''";

    local PLOTVARS2 black hisp asian white amind pacif;

    * coefplot for Table 2A;
    coefplot est4 , levels(`lvl11') bylabel(2011) ||
             est5 , levels(`lvl12') bylabel(2012) ||
             est6 , levels(`lvl13') bylabel(2013) ||
             est7 , levels(`lvl14') bylabel(2014) ||
             est8 , levels(`lvl15') bylabel(2015) ||
             est9 , levels(`lvl16') bylabel(2016) ||
             est10, levels(`lvl17') bylabel(2017) ||,
```

```
        keep(`PLOTVARS2') vert yline(0) bycoefs
        byopts(yrescale title("Mean OSS Probability by Race by Year"))
        xlabel(,angle(45));
    graph export "coefplot/summ04/race_all_schwarz.png", replace;

    eststo clear;


    * B. small public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & schsmall & !magnet & !chartr, nocons
vce(cluster schoolid);
    };

    estout, title(Table 2B. Mean OSS probability by race, by schyear
(small (bottom 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2B. Mean OSS probability by race, by schyear
(small (bottom 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * C. mid-sized public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & schmid & !magnet & !chartr, nocons
vce(cluster schoolid);
    };

    estout, title(Table 2C. Mean OSS probability by race, by schyear
(mid-sized (middle 50% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2C. Mean OSS probability by race, by schyear (mid-
sized (middle 50% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * D. large public schools;
    forvalues Y = 8/17 {;
```

```
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & schlarge & !magnet & !chartr, nocons
vce(cluster schoolid);
    };

    estout, title(Table 2D. Mean OSS probability by race, by schyear
(large (top 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2D. Mean OSS probability by race, by schyear
(large (top 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * E. magnet schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & magnet, nocons vce(cluster schoolid);
    };

    estout, title(Table 2E. Mean OSS probability by race, by schyear
(magnet schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2E. Mean OSS probability by race, by schyear
(magnet schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * F. charter schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 2F. Mean OSS probability by race, by schyear
(charter schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 2F. Mean OSS probability by race, by schyear
```

```
(charter schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    forvalues G = 3/12 {;
        di "Grade: `G'";

        forvalues Y = 8/19 {;
            di "School year: `Y'";
            eststo, title("`Y'"):
                quietly reg oss_pct black hisp asian white amind pacif
multi if schyear == `Y' & grade == `G', nocons vce(cluster schoolid);

            local cv`Y' = sqrt(log(e(N)));
            local df`Y' = e(N_clust)-1;
            local lvl`Y' = (1 - 2 *ttail(`df`Y'', `cv`Y''))*100;
            di "Critical value: `cv`Y''";
            di "Degrees of freedom: `df`Y''";
            di "Confidence level: `lvl`Y''";
        };

        estout using summ04.tmp,
            title(Table 2A-`G'. Mean OSS probability by race, by
schyear (grade `G'))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
        !type summ04.tmp >> summ04.tbl;

        * coefplot;
        coefplot est4 , levels(`lvl11') bylabel(2011) ||
                 est5 , levels(`lvl12') bylabel(2012) ||
                 est6 , levels(`lvl13') bylabel(2013) ||
                 est7 , levels(`lvl14') bylabel(2014) ||
                 est8 , levels(`lvl15') bylabel(2015) ||
                 est9 , levels(`lvl16') bylabel(2016) ||
                 est10, levels(`lvl17') bylabel(2017) ||,
            keep(`PLOTVARS2') vert yline(0) bycoefs
            byopts(yrescale title("Mean OSS Probability by Race for
Grade `G' by Year"))
            xlabel(,angle(45));
        graph export "coefplot/summ04/race_g`G'_schwarz.png", replace;

        eststo clear;
    };


di "$S_DATE $S_TIME";
    * Table 3: Mean OSS prob by race and gender;
```

```
    * A. full sample;
    forvalues Y = 8/19 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y', nocons
vce(cluster schoolid);
    };

    estout, title(Table 3A. Mean OSS probability by race and gender,
by schyear)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3A. Mean OSS probability by race and gender, by
schyear)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;

    local cv`Y' = sqrt(log(e(N)));
    local df`Y' = e(N_clust)-1;
    local lvl`Y' = (1 - 2 *ttail(`df`Y'', `cv`Y''))*100;
    di "Critical value: `cv`Y'"";
    di "Degrees of freedom: `df`Y'"";
    di "Confidence level: `lvl`Y'"";

    local PLOTVARS3 black_m black_f hisp_m hisp_f white_m white_f
asian_m asian_f;

    * coefplot for Table 3A;
    coefplot est4 , levels(`lvl11') bylabel(2011) ||
             est5 , levels(`lvl12') bylabel(2012) ||
             est6 , levels(`lvl13') bylabel(2013) ||
             est7 , levels(`lvl14') bylabel(2014) ||
             est8 , levels(`lvl15') bylabel(2015) ||
             est9 , levels(`lvl16') bylabel(2016) ||
             est10, levels(`lvl17') bylabel(2017) ||,
        keep(`PLOTVARS3') vert yline(0) bycoefs
        byopts(yrescale title("Mean OSS Probability by Race/Gender by
Year"))
        xlabel(,angle(45));
    graph export "coefplot/summ04/racegend_all_schwarz.png", replace;

    eststo clear;

    * B. small public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y' & schsmall
& !magnet & !chartr, nocons vce(cluster schoolid);
    };
```

```
    estout, title(Table 3B. Mean OSS probability by race and gender,
by schyear (small (bottom 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3C. Mean OSS probability by race and gender, by
schyear (small (bottom 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * C. mid-sized public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y' & schmid
& !magnet & !chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 3C. Mean OSS probability by race and gender,
by schyear (mid-sized (middle 50% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3C. Mean OSS probability by race and gender, by
schyear (mid-sized (middle 50% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * D. large public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y' & schlarge
& !magnet & !chartr, nocons vce(cluster schoolid);
    };

    estout, title(Table 3D. Mean OSS probability by race and gender,
by schyear (large (top 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3D. Mean OSS probability by race and gender, by
schyear (large (top 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;
```

```
    * E. magnet schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y' & magnet,
nocons vce(cluster schoolid);
    };

    estout, title(Table 3E. Mean OSS probability by race and gender,
by schyear (magnet schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3E. Mean OSS probability by race and gender, by
schyear (magnet schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * F. charter schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `DEMVARS' if schyear == `Y' & chartr,
nocons vce(cluster schoolid);
    };

    estout, title(Table 3F. Mean OSS probability by race and gender,
by schyear (charter schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 3F. Mean OSS probability by race and gender, by
schyear (charter schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;



    forvalues G = 3/12 {;
        di "Grade: `G'";

        forvalues Y = 8/19 {;
            di "School year: `Y'";
            eststo, title("`Y'"):
                quietly reg `DEMVARS' if schyear == `Y' & grade ==
`G', nocons vce(cluster schoolid);
```

```
            local cv`Y' = sqrt(log(e(N)));
            local df`Y' = e(N_clust)-1;
            local lvl`Y' = (1 - 2 *ttail(`df`Y'', `cv`Y''))*100;
            di "Critical value: `cv`Y'"";
            di "Degrees of freedom: `df`Y'"";
            di "Confidence level: `lvl`Y'"";

        };

        estout using summ04.tmp,
            title(Table 3A-`G'. Mean OSS probability by race and
gender, by schyear (grade `G'))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
        !type summ04.tmp >> summ04.tbl;

        * coefplot;
        coefplot est4 , levels(`lvl11') bylabel(2011) ||
                 est5 , levels(`lvl12') bylabel(2012) ||
                 est6 , levels(`lvl13') bylabel(2013) ||
                 est7 , levels(`lvl14') bylabel(2014) ||
                 est8 , levels(`lvl15') bylabel(2015) ||
                 est9 , levels(`lvl16') bylabel(2016) ||
                 est10, levels(`lvl17') bylabel(2017) ||,
            keep(`PLOTVARS3') vert yline(0) bycoefs
            byopts(yrescale title("Mean OSS Probability by Race/Gender
for Grade `G' by Year"))
            xlabel(,angle(45));
        graph export "coefplot/summ04/racegend_g`G'_schwarz.png",
replace;

        eststo clear;
    };

    eststo clear;


di "$S_DATE $S_TIME";
    * Table 4: OSS prob and EDS status w/ school EDS status;
    * A. full sample;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y',
vce(cluster schoolid);
    };

    estout, title(Table 4A. Mean OSS probability by free lunch status,
by schyear)
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
```

```
    estout using summ04.tmp,
        title(Table 4A. Mean OSS probability by free lunch status, by
schyear)
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;

    local PLOTVARS5 `EDSVARS';

    * coefplot for Table 4A;
    coefplot est4 , levels(`lvl11') bylabel(2011) ||
             est5 , levels(`lvl12') bylabel(2012) ||
             est6 , levels(`lvl13') bylabel(2013) ||
             est7 , levels(`lvl14') bylabel(2014) ||
             est8 , levels(`lvl15') bylabel(2015) ||
             est9 , levels(`lvl16') bylabel(2016) ||
             est10, levels(`lvl17') bylabel(2017) ||,
        keep(`PLOTVARS5') vert yline(0) bycoefs
        byopts(yrescale title("Mean OSS Probability by Free Lunch
Status by Year"))
        xlabel(,angle(45));
    graph export "coefplot/summ04/eds_all_schwarz.png", replace;

    eststo clear;

    * B. small public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y' & schsmall
& !magnet & !chartr, vce(cluster schoolid);
    };

    estout, title(Table 4B. Mean OSS probability by free lunch status,
by schyear (small (bottom 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 4B. Mean OSS probability by free lunch status, by
schyear (small (bottom 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * C. mid-sized public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y' & schmid
& !magnet & !chartr, vce(cluster schoolid);
    };
```

```
    estout, title(Table 4C. Mean OSS probability by free lunch status,
by schyear (mid-sized (middle 50% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 4C. Mean OSS probability by free lunch status, by
schyear (mid-sized (middle 50% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * D. large public schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y' & schlarge
& !magnet & !chartr, vce(cluster schoolid);
    };

    estout, title(Table 4D. Mean OSS probability by free lunch status,
by schyear (large (top 25% size) public schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 4D. Mean OSS probability by free lunch status, by
schyear (large (top 25% size) public schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;

    * E. magnet schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y' & magnet,
vce(cluster schoolid);
    };

    estout, title(Table 4E. Mean OSS probability by free lunch status,
by schyear (magnet schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 4E. Mean OSS probability by free lunch status, by
schyear (magnet schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;
```

```
    * F. charter schools;
    forvalues Y = 8/17 {;
        eststo, title("`Y'"):
            quietly reg oss_pct `EDSVARS' if schyear == `Y' & chartr,
vce(cluster schoolid);
    };

    estout, title(Table 4F. Mean OSS probability by free lunch status,
by schyear (charter schools))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label;
    estout using summ04.tmp,
        title(Table 4F. Mean OSS probability by free lunch status, by
schyear (charter schools))
        cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
    !type summ04.tmp >> summ04.tbl;
    eststo clear;



    forvalues G = 3/12 {;
        di "Grade: `G'";

        forvalues Y = 8/17 {;
            di "School year: `Y'";
            eststo, title("`Y'"):
                quietly reg `EDSVARS' if schyear == `Y' & grade ==
`G', vce(cluster schoolid);

            local cv`Y' = sqrt(log(e(N)));
            local df`Y' = e(N_clust)-1;
            local lvl`Y' = (1 - 2 *ttail(`df`Y'', `cv`Y''))*100;
            di "Critical value: `cv`Y''";
            di "Degrees of freedom: `df`Y''";
            di "Confidence level: `lvl`Y''";
        };

        estout using summ04.tmp,
            title(Table 4A-`G'. Mean OSS probability by free lunch
status, by schyear (grade `G'))
            cells(b(fmt(2)) t(par([ ]) fmt(2))) stats(N r2 F) num([ ])
label replace;
        !type summ04.tmp >> summ04.tbl;

        * coefplot;
        coefplot est4 , levels(`lvl11') bylabel(2011) ||
                 est5 , levels(`lvl12') bylabel(2012) ||
                 est6 , levels(`lvl13') bylabel(2013) ||
```

```
                est7 , levels(`lvl14') bylabel(2014) ||
                est8 , levels(`lvl15') bylabel(2015) ||
                est9 , levels(`lvl16') bylabel(2016) ||
                est10, levels(`lvl17') bylabel(2017) ||,
            keep(`PLOTVARS5') vert yline(0) bycoefs
            byopts(yrescale title("Mean OSS Probability by Free Lunch
Status for Grade `G' by Year"))
            xlabel(,angle(45));
        graph export "coefplot/summ04/eds_g`G'_schwarz.png", replace;

        eststo clear;
    };

di "$S_DATE $S_TIME";
!del summ04.tmp;
exit;
```