Still a Freshman:

Examining the Prevalence and Characteristics of Ninth-Grade Retention Across Six States

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Executive Summary

With the nation's governors signing the National Governors Association Graduation Compact, and the federal government and organizations such as the Data Quality Campaign, and other advocacy groups leading the efforts to standardize the way student success is measured, better data on graduation rates is on the way. In fact, some states have already begun to use and publish state- and school-level graduation cohort rates, and others will do so soon. While this is good news, a key piece of information is still lacking: annual published counts of the number of first-time ninth-graders at the school-level.

Because ninth grade is a make-or-break year for increasing graduation rates, schools with high ninth-grade retention rates face many challenges in improving their graduation rates. In many of these schools there is a mismatch between the number of students who need help and the help available. Ninth-grade retention rates, however, can act as an early warning system for high schools in need of support and also as an early indicator that high school reforms are on-track to improving graduation rates. Reports based on fall enrollment numbers could, in theory, be available before the end of a given school year, providing school officials with real-time indicators of challenge, need, and progress. They would no longer have to wait four years for a graduation rate when it is too late to act.

This report is designed to show the potential of what we could learn if ninth-grade retention data were made readily available by states. Because retention data and unadjusted counts of first-time ninth-graders are not yet available, it is still necessary to estimate. By introducing a new approach, the *first-time ninth-grade estimate*, this study provides state-level estimates of ninth-grade retention and examines school-level rates of ninth-grade retention by location, size, available resources, and socioeconomic and race/ethnic composition.

The *first-time ninth-grade estimate* is calculated by dividing the number of first-time ninth-graders by the total number of students enrolled in ninth grade (students in ninth grade for the first-time and students repeating ninth grade) in a given year. For the 2004-2005 school year, the *first-time ninth-grade estimate* is calculated as follows.

$$\text{First-Time Ninth-Grade Estimate (2004-2005)} = \frac{\text{Adjusted Number of Students in Ninth Grade for the First-Time (2004-2005)}}{\text{Total Number of Students in Ninth Grade (2004-2005)}} \times 100$$

Six states were chosen for this report for two reasons: 1) they provide on-time graduation rate cohort data for the Class of 2008, and 2) the states represent both those that produce the majority of the nation's dropouts and those that are middle of the pack, which shows the potential utility of this measure across both types of states.

Using each state's Class of 2008 on-time graduation rate cohorts (number of students in ninth grade for the first-time in 2004-2005 plus transfers in and minus transfers out) to calculate *first-time ninth-grade estimates* for the 2004-2005 school year, this study found the following:

- Across the six states, more than 90,000 students (16 percent of all ninth-grade students) repeated ninth grade during the 2004-2005 school year;

  In South Carolina, nearly three in ten students repeated ninth grade, in North Carolina, two in ten students (or one in five) repeated; in New York and Indiana, slightly more than one in ten students; in Massachusetts, roughly one in ten were repeaters.

- In Massachusetts, New York, Indiana, and Virginia between 5 and 8 percent of high schools had ninth-grade retention rates greater than 30 percent; in North Carolina, roughly 15 percent, and in South Carolina, more than 40 percent of high schools had retention rates above 30 percent.

- Roughly 38 percent of South Carolina high school students attended schools with ninth-grade retention rates greater than 30 percent, as did 15 percent of North Carolina high school students, 9 percent of New York and Indiana students, 7 percent of Virginia students and 4 percent of Massachusetts high school students.

- As school-level concentrations of poor and minority students increase, so does the percentage of students repeating ninth grade

Based on the findings in this report, states should be called on to separately include counts of first-time ninth-graders in their basic data reporting. Additionally, the U.S. Department of Education, National Center for Education Statistics' Common Core of Data (CCD) Nonfiscal Survey of Public Elementary/Secondary Education should collect this data from states, districts, and schools to provide a standardized check for states using different methods and criteria to establish which students are, and are not, removed from the adjusted first-time ninth-grade graduation rate cohorts.

Introduction

Despite research highlighting the link between student success in the ninth grade and successful educational outcomes, the National Education Longitudinal Study of 1988 (NELS: 88), is the only longitudinal study conducted by the U.S. Department of Education's National Center for Education Statistics (NCES) that includes in its study design the ability to examine the transition from primary to secondary education. Prior to and since NELS:88, NCES's longitudinal studies have begun with twelfth-grade students (the National Study of the High School Class of 1972 (NLS-72)) and tenth-grade students (High School and Beyond: 1980 (HS&B) and the Education Longitudinal Study of 2002 (ELS: 2002)) making it nearly impossible to make generalizations about the experiences of students in the ninth grade.

This gap in nationally representative data on the educational experiences of ninth-graders has left researchers, policy makers, and educators dependent on the findings of numerous qualitative and quantitative studies that have generally studied low-performing, urban schools and school districts. While these studies have produced valuable insights, it not possible to generalize their findings to the nearly 35 million students (71 percent of all students enrolled in a public school) and more than 76,000 public schools (roughly 74 percent of the 103,595 public schools in the United States) in the United States that are not located in urban areas[1].

Further exacerbating the need for nationally representative data on the experiences of ninth-grade students was the push by the Clinton administration to end social promotion in the late 1990s and the passage of the No Child Left Behind Act of 2001 (NCLB). By advocating that schools no longer push students along to twelfth grade and by enacting requirements on states to set high standards and establish measurable goals, the landscape of public education has changed dramatically since the 1988-1989 school year (when students in NELS: 88 would have been ninth-graders).

Fortunately, one outcome of NCLB has been a focus on creating student-level data systems that will give states, districts, and schools the ability to track and measure the progress of students over time.

With public funding from the U.S. Department of Education and private funding from foundations such as the Bill & Melinda Gates Foundation, many states have begun to implement student-level data systems. As of March 2009, 41 states and the District of Columbia have received at least one grant to develop and implement a longitudinal data system through the NCES' Statewide Longitudinal Data System (SLDS) Grant Program (NCES 2009). As states begin to bring their longitudinal data systems online, the present gap in nationally representative data on ninth grade students will not only cease to exist, but also be replaced with actual data for entire schools, school districts, and states.

To address the gap in nationally representative data on ninth-grade students, this report examines school-level data for six states — Indiana, Massachusetts, New York, North Carolina,

South Carolina, and Virginia – that have received SLDS grants and are currently using student-level data systems. More specifically, this work focuses on ninth-grade retention, or nonpromotion, by analyzing cohorts of first-time ninth-graders used by the states to calculate four-year (on-time) graduation rates to create the *first-time ninth-grade estimate*. These findings not only provide real world estimates based on student-level data, but also show how publicly available state data can be linked to a sociological examination of how school-level social and structural factors influence ninth-grade retention.

Background

To date, research on grade retention, or nonpromotion, has generally followed four approaches:

- cross-sectional modal age per grade analyses using data collected from the U.S. Census Bureau and the U.S. Bureau of Labor Statistics' Current Population Survey (CPS) (Bianchi 1984; Hauser et. al. 2000);
- sample estimates of retention from the U.S. Department of Education, National Center for Education Statistics' (NCES) National Household Education Surveys Program (NHES) (Planty et. al. 2009);
- cohort progression analyses using enrollment data from NCES' Common Core of Data (CCD) (Abrams and Haney 2004; Balfanz and Legters 2004; Greene 2002; Swanson 2004);
- quantitative analyses of school district-level data sets (Alexander et. al. 1997; Roderick 1994; Roderick and Camburn 1996; Legters et. al. 2002; Neild and Balfanz 2006; Rumberger and Arellano 2007).

Despite the methodological strengths and weaknesses of each analytical approach, and the limitations of the data used, each of these four methods has produced similar conclusions regarding ninth-grade retention.

Every October, the U.S. Census Bureau conducts the October School Enrollment Supplement to the Current Population Survey (CPS) for U.S. Bureau of Labor Statistics. The CPS is a monthly survey of roughly 50,000 households selected to represent the U.S. civilian noninstitutional population. The CPS' Enrollment Supplement is conducted to gather information on school enrollment for anyone in the household 3 years and older. The supplement contains items designed to collect data on current grade level attended, education sector attended (public or private), college attendance, the last year respondents attended a regular school, and the year respondents graduated from high school (Bureau of the Census 2008).

To examine rates of retention and promotion, researchers have compared the age of a respondent's child and the grade they reported the child to be for the current school year to the modal age for the reported grade (Bianchi 1984; Hauser et. al. 2000). This approach allows researchers to establish an expected age for each grade, the modal age for the grade, and then assume that children older than the modal age for a given grade have been retained

in an earlier grade. Additionally, because the CPS also collects general demographic and economic data on each respondent, this analytic approach gives researchers the ability to look not only at general rates of retention and promotion, but also at how rates vary by gender, race/ethnicity, locale, and socioeconomic status. Findings from this approach have identified the early elementary grades as those where students are most likely to be overage (Bianchi 1984; Hauser et. al. 2000). Logically, if retention occurs most in the early elementary grades, the percentage of students who are overage per grade increases as students move through the K-12 pipeline. Because of this, it is difficult to ascertain rates of ninth-grade retention as many of these students were retained in earlier grades.

The second approach used to quantify rates of grade retention and promotion is based on estimates from self-reported data collected from NCES' National Education Surveys Program (NHES). Designed to produce national and regional (e.g. North, East, South, Midwest, and West) estimates, NHES data have been collected nine times; 1991, 1993, 1995, 1996, 1999, 2001, 2003, 2005, and 2007. To estimate rates of retention, researchers have analyzed the self-reported responses of parents to two NHES survey questions; 1) Since starting kindergarten, has (CHILD) repeated any grades? (NHES variable SEREPEAT), which is followed by 2) What grade or grades did (he/she) repeat? (NHES variable SEREPTK-12). As with CPS data, the responses to these questions are taken as reported and are not verified with any additional information.

From parents' responses to these two NHES survey items, researchers have concluded consistently across six rounds of data collection (1996, 1999, 2001, 2003, 2005, and 2007) that students are most likely to be retained in kindergarten or first grade (Planty et. al. 2009). In regard to the ninth grade, this rate is not generally reported and requires further investigation of the NHES data sets. For the 2007 collection year, of the 10.9 percent of parents who reported that their child had repeated a grade (based on applying the final population weight to 894 responses), 11.3 percent reported that their child repeated ninth grade[2]. Other than kindergarten and grades 1-3, ninth grade was reported as the grade that children had most often repeated[3].

To supplement findings from the first two sample-based approaches that use self-reported incidents of grade retention, researchers have taken a more demographic approach by looking at state reported school enrollment data (Abrams and Haney 2004; Balfanz and Legters 2004; Greene 2002; Swanson 2004). This third approach to examining grade retention, conducts cohort progression analyses on CCD enrollment data to estimate rates of retention, promotion, and completion in the absence of nationally representative data. At the smallest unit of analysis, these estimates are based on aggregated school-level data that can be aggregated to the school district, city, county, state, region, and national levels. This type of analysis has been used to produce estimates of retention and promotion by grade level, and can be disaggregated by gender and race/ethnicity.

Using only state reported enrollment data from the CCD, cohort progression analyses are conducted by comparing the percentage increase or decrease from one grade to the next following a hypothetical cohort of students. For example, to study rates of retention and

promotion for the Class of 2008 (students who graduated in the spring of the 2007-08 school year), one would begin with kindergarten enrollment totals for the 1995-1996 school year or first grade enrollment totals for the 1996-1997 school year, then compare the enrollment totals of subsequent grades progressing one year each time. By representing this approach with a bar graph, it is possible to conclude that the greatest rates of retention for the Class of 2008 occurred during ninth grade and that an estimated 74.2 percent of the students who were enrolled in first grade in 1996-1997 graduated in the spring of the 2007-2008 school year[4] (See Figure 1).

Figure 1: Class of 2008 Grade Enrollments and Graduates
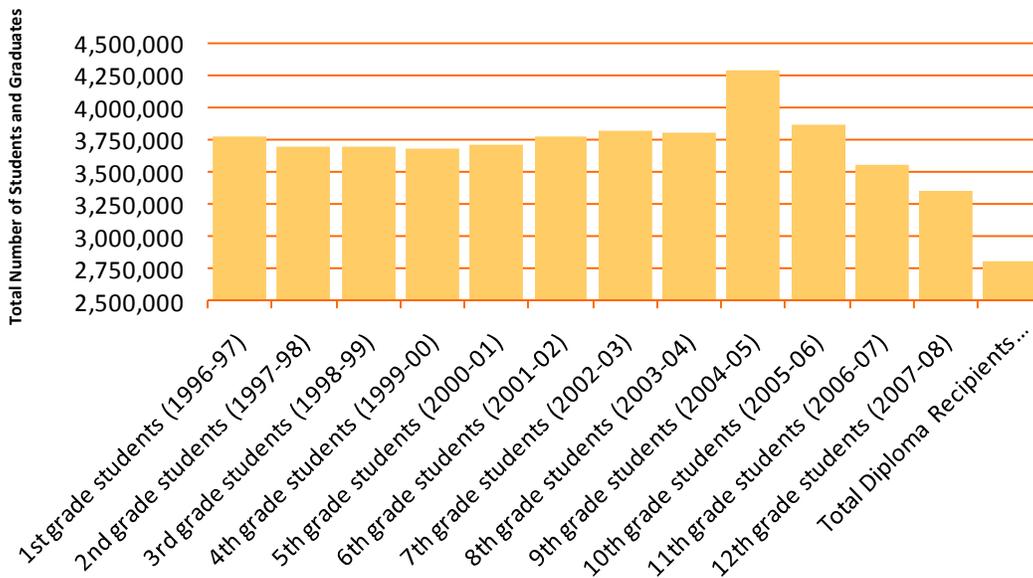
NOTE: Includes all public school students.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education," and state education agency reports.

Lastly, and arguably the most precise approach to studying ninth-grade retention and promotion rates, is to conduct quantitative analyses on district student-level, longitudinal data sets. Led mainly by the work of researchers at the Consortium on Chicago School Research at the University of Chicago, the University of California, Santa Barbara, and Johns Hopkins University's Center for Social Organization of Schools, this approach gives researchers the ability to track cohorts of students across multiple school years and produce real world rates. While the majority of these studies have used grade retention as an independent variable for predicting dropout rates and high school completion, these studies have shown that for students in grades 6-12, the ninth grade is where students are most likely to be retained (Roderick 1994; Roderick and Camburn 1996; Legters et. al. 2002; Neild and Balfanz 2006).

Despite differences in analytical approach, each of these methods has produced similar findings. The ninth grade is a pivotal year for many students. For students who will

ultimately not complete high school, ninth grade is the last place along the K-12 pipeline where a large number of students are retained before dropping out of school completely. To further understand ninth-grade retention and how school characteristics influence rates of retention, this study utilizes student-level cohort data from six states; Indiana, Massachusetts, New York, North Carolina, South Carolina, and Virginia. To introduce a new approach, the *first-time ninth-grade estimate*, this study uses actual four-year graduation rate cohorts to estimate rates of ninth-grade retention by comparing the total number of first-year ninth-grade students to the total number of ninth-grade students for a given school year. Because the analyses are based on the entire population of ninth-graders who attended regular high schools in each of these states, it is possible to not only examine how high school contexts such as location, school size, poverty, and race composition affect ninth-grade retention rates across these states, but to also identify schools that could benefit from ninth-grade interventions.

Methods and Data

This work takes a unique approach to studying rates of ninth-grade retention by using actual four-year graduation rate cohorts to calculate the percentage of students who were first-time ninth-grade students (*first-time ninth-grade estimate*) in all regular high schools in six states: Indiana, Massachusetts, New York, North Carolina, South Carolina, and Virginia. As part of these states' adequate yearly progress determinations for high schools, school-level four-year graduation rates are calculated by determining what percent of students who entered the ninth-grade for the first-time (the four-year graduation rate cohort) graduated four years later. The six states in this study establish each four-year graduation rate cohort by identifying students who were in the ninth grade for the first-time and then adjusting for students who transfer in or withdraw from the school/district during the four years.

To analyze rates of promotion/nonpromotion across the six states, two data files were used for each state; 1) the state's Class of 2008 four-year graduation rate school-level file and 2) the U.S. Department of Education, National Center for Education Statistics' (NCES) 2004-2005 Common Core of Data (CCD). The CCD is conducted annually by NCES to collect fiscal and non-fiscal data from state education agencies. By using the unique state identifier for each school in the state graduation rate school-level files and the CCD, it is possible to combine data from the two sources and calculate the percentage of students who were first-time ninth-grade students during the 2004-2005 school year (*first-time ninth grade estimate*). To calculate the rate for each school, the state reported four-year graduation rate cohort total (the adjusted number of students in the ninth grade for the first-time) was divided by the CCD state reported total number of ninth-grade students (CCD variable *g0904*). While rates were calculated for all high schools in each state, the analyses presented here were restricted to only regular high schools as defined by the CCD variable *type04* (option 1).

Similar to *Promoting Power* (the number of students in the twelve grade divided by the number of students in the ninth grade three years earlier), schools with a low *first-time ninth-grade estimate* are likely to have low percentages of student graduating on-time, and high percentages

of students dropping out before earning a high school diploma (Balfanz and Legters 2004). Or stated differently, if students do not progress on-time from the ninth grade to the tenth grade they will most likely not be able to progress on-time to the eleventh or twelfth grade, and will ultimately not graduate on-time. An advantage to using this new approach is that it enables the identification of schools with large portions of struggling ninth-grade students after one year while *Promoting Power* takes three years. Two limitations to using the *first-time ninth grade estimate* to examine rates of retention is that the majority of states do not report the number of first-time ninth-grade students for a given school year until they publish graduation rates (at least three years from when the students in the graduation rate cohorts would have been first-time ninth-graders) and the adjustment of the cohorts for students who transferred in and withdrew from the school/district during the four years may minimally affect the precision of the measure.

A school's location, the size of its student body, the resources available to a school, and its socioeconomic composition have all been demonstrated to be strong predictors of student outcomes (Coleman et. al. 1966; Entwisle and Alexander 1992). To predict how school-level physical, structural, and social contexts affect rates of ninth-grade retention, this study used multiple ANOVAs and OLS regressions with the calculated first-time ninth grade rate as the outcome variable and numerous variables from the CCD as predictors. Representing the physical location of a school, the CCD variable *locale04* (location of the school relative to populous areas) has eight possible values (from 1 = Large City to 8 = Rural, inside CBSA) and was re-coded into a continuous variable, urbanicity (ranging from large city to remote rural area), by swapping the values 7 (Rural, outside a metropolitan core based statistical area (CBSA) and 8 (Rural, inside CBSA). To measure the size of a school's student body, the amount of resources available, and the socioeconomic and racial composition of a school, the variables *totgrd04* (calculated school membership), *puptch04* (calculated pupil/teacher ratio), *totrl04* (number of students eligible for free and reduced-price lunch), *am04* (total of American Indian/Alaskan Native students), *asian04* (total of Asian/Pacific Islander students), *hisp04* (total of Hispanic students), *black04* (total of Black, non-Hispanic students), and *white04* (total of White, non-Hispanic students) were used respectively. For analysis purposes, the variables *totfrl04*, *am04*, *asian04*, *hisp04*, *black04*, and *white04* were all divided by *totgrd04* and multiplied by 100 to produce school-level percentages. Additionally, the race/ethnicity variables *am04*, *asian04*, *hisp04*, and *black04* were added and divided by *totgrd04* to calculate the percentage of minority students.

Population Characteristics and State Policies

Before examining the results of the various ANOVAs and OLS regressions, it is important to understand the demographic characteristics of each state's high schools and explore whether education policies designed to guide grade retention decisions vary across the six states. Using the *first-time ninth grade estimate* (the percentage of students in the ninth grade who were in the ninth grade for the first time) and the predictive variables (urbanicity, school size, percentage of students eligible for free or reduced-price lunch, calculated pupil/teacher ratio, and the percentage of minority students), Table 1 illustrates the distribution of schools by each

variable for each state (See Table 1). On average, other than North Carolina and South Carolina, the average four-year graduation is in the low 80s. Similar to what we have found with *Promoting Power*, North Carolina and South Carolina have a larger portion of high schools with graduation rates of 65 percent or below (Balfanz and Legters 2004)[5].

Table 1: Number and Percent of Schools by Selected School Characteristics by State (All Regular High Schools)

School Characteristic	Massachusetts (n = 280)		New York (n = 719)		Indiana (n = 339)		Virginia (n = 265)		North Carolina (n = 339)		South Carolina (n = 186)	
	n	%	n	%	n	%	n	%	n	%	n	%
Class of 2008 Four-Year On-Time Graduation Rate												
65% or below	29	10.4%	57	7.9%	26	7.7%	18	6.8%	67	19.8%	28	15.1%
66-69%	8	2.9%	35	4.9%	16	4.7%	7	2.6%	31	9.1%	14	7.5%
70-79%	41	14.6%	136	18.9%	82	24.2%	54	20.4%	142	41.9%	75	40.3%
80-89%	79	28.2%	258	35.9%	155	45.7%	129	48.7%	82	24.2%	56	30.1%
90% or above	123	43.9%	213	29.6%	60	17.7%	57	21.5%	17	5.0%	13	7.0%
Average	83.4%		82.0%		80.6%		82.3%		74.0%		75.5%	
Locale												
City	58	20.7%	80	11.1%	45	13.3%	52	19.6%	67	19.8%	22	11.8%
Suburb	165	58.9%	289	40.2%	89	26.3%	68	25.7%	48	14.2%	49	26.3%
Town	5	1.8%	53	7.4%	43	12.7%	26	9.8%	38	11.2%	22	11.8%
Rural	52	18.6%	297	41.3%	162	47.8%	119	44.9%	186	54.9%	93	50.0%
School Size												
50 to 299	20	7.1%	49	6.8%	12	3.5%	19	7.2%	11	3.2%	8	4.3%
300 to 799	106	37.9%	387	53.8%	182	53.7%	85	32.1%	89	26.3%	67	36.0%
800 to 1,199	69	24.6%	125	17.4%	60	17.7%	47	17.7%	100	29.5%	49	26.3%
1,200 to 1,999	76	27.1%	129	17.9%	65	19.2%	70	26.4%	117	34.5%	46	24.7%
2,000 or more	9	3.2%	29	4.0%	20	5.9%	44	16.6%	22	6.5%	16	8.6%
Average	962		846		909		1,168		1,131		1,023	
Percent of Students Eligible for Free or Reduced-Price Lunch												
20% or less	186	66.4%	330	45.9%	127	37.5%	90	34.0%	58	17.1%	15	8.1%
21-39%	39	13.9%	247	34.4%	155	45.7%	117	44.2%	145	42.8%	52	28.0%
40% or more	55	19.6%	142	19.7%	57	16.8%	58	21.9%	136	40.1%	119	64.0%
Average	21.1%		24.7%		27.5%		28.7%		36.5%		48.7%	
Calculated Pupil/Teacher Ratio (School Resources)[1]												
15 or less	230	82.1%	579	80.5%	57	16.8%	198	74.7%	164	48.4%	86	46.2%
16 to 19	45	16.1%	125	17.4%	200	59.0%	61	23.0%	145	42.8%	87	46.8%
20 or more	5	1.8%	15	2.1%	82	24.2%	6	2.3%	30	8.8%	13	7.0%
Average	14.3		13.6		17.8		14.2		15.7		15.8	
Percent Minority Students												
Less than 10%	145	51.8%	423	58.8%	261	77.0%	71	26.8%	45	13.3%	9	4.8%
10-49%	91	32.5%	200	27.8%	58	17.1%	120	45.3%	184	54.3%	99	53.2%
50-80%	22	7.9%	40	5.6%	10	2.9%	60	22.6%	82	24.2%	45	24.2%
81-89%	8	2.9%	19	2.6%	3	0.9%	6	2.3%	12	3.5%	9	4.8%
90% or more	14	5.0%	37	5.1%	7	2.1%	8	3.0%	16	4.7%	24	12.9%
Average	21.7%		18.7%		10.8%		32.0%		38.6%		48.8%	

[1]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.

High schools in Indiana, South Carolina, and Virginia are similarly distributed with nearly half of schools in rural areas and roughly one-quarter in suburban communities. The other three states have very different distributions with the largest portion of Massachusetts high schools in suburban areas, nearly 55 percent of North Carolina high schools located in rural areas, and New York high schools generally split between suburban and rural areas. The average size of high school enrollment across the six states was between 846 (New York) and 1,168 students (Virginia) with New York having the largest proportion of schools with an overall study body totaling less than 800 (60.6 percent), followed by Indiana (57.2 percent). Virginia had the largest proportion of schools with enrollment greater than 1,200 students (43.0 percent) followed by North Carolina (41.0 percent).

The average percentage of students eligible for free or reduced-price lunch and the average percentage of minority students was lowest in the northern states (Massachusetts, New York, and Indiana) and highest in the southern states (Virginia, North Carolina, and South Carolina). In addition to socioeconomic and racial/ethnic composition, the calculated pupil/teacher ratio can be used as a proxy for school resources. A school with a low calculated pupil/teacher ratio represents a school with more teachers per student and a school with a high pupil/teacher ratio represents a school with fewer teachers per student. It is important to note that this calculated ratio is not a measure of classroom size and should not be interpreted as such. Looking at the average calculated pupil/teacher ratio across the six states shows New York, Virginia, and Massachusetts with the lowest average ratios (13.6, 14.2, and 14.3 respectively), North Carolina and South Carolina with similar average ratios (15.7 and 15.8 respectively), and Indiana with the highest average ratio (17.8).

While community characteristics have been shown to be the strong predictors of student outcomes, it is also important to understand the policy framework in which schools operate. Historically, grade retention policies have generally been loosely outlined by state education agencies, but implemented by school districts. This results in some states, such as Washington, where one school district, Seattle, has much lower rates of ninth-grade retention than another school district, Tacoma, due to very different approaches toward retention. However, as states such as New York, Virginia, and North Carolina implement end-of-course exams in response to requirements of the No Child Left Behind Act (NCLB), retention may be more uniformly tied to exam performance.

Because this study focuses on the Class of 2008, it is important to understand retention polices as they existed during the 2004-2005 school year; when the class was in the ninth grade. Across the six states, Indiana was the only state that did not have a loosely outlined state policy regarding grade retention. While three states, Massachusetts, New York, and Virginia, left retention decisions completely to local authorities, North Carolina and South Carolina had very basic state policies guiding local school districts on how to make retention decisions (Education Commission of the States 2005). Based on this information, it is not possible to control for retention decisions, which not only vary from district to district, but also vary within districts and schools.

Results

Percentage of First-Time Ninth Grade Students

Across the six states, the percentage of students who were in the ninth grade for first time during the 2004-2005 school year ranged from 90.3 percent in Massachusetts to 72.4 percent in South Carolina (See Figure 2). This means that roughly one in ten students in Massachusetts repeated ninth grade in 2004-2005, and nearly three in ten students repeated ninth grade in South Carolina. In New York and Indiana, 86.7 percent of ninth-grade students were in the ninth grade for the first time; 84.8 percent in Virginia, and 79.6 percent in North Carolina.

Figure 2: Percentage of First-Time and Repeating Ninth-Graders by State, 2004-2005 (All Regular High Schools)
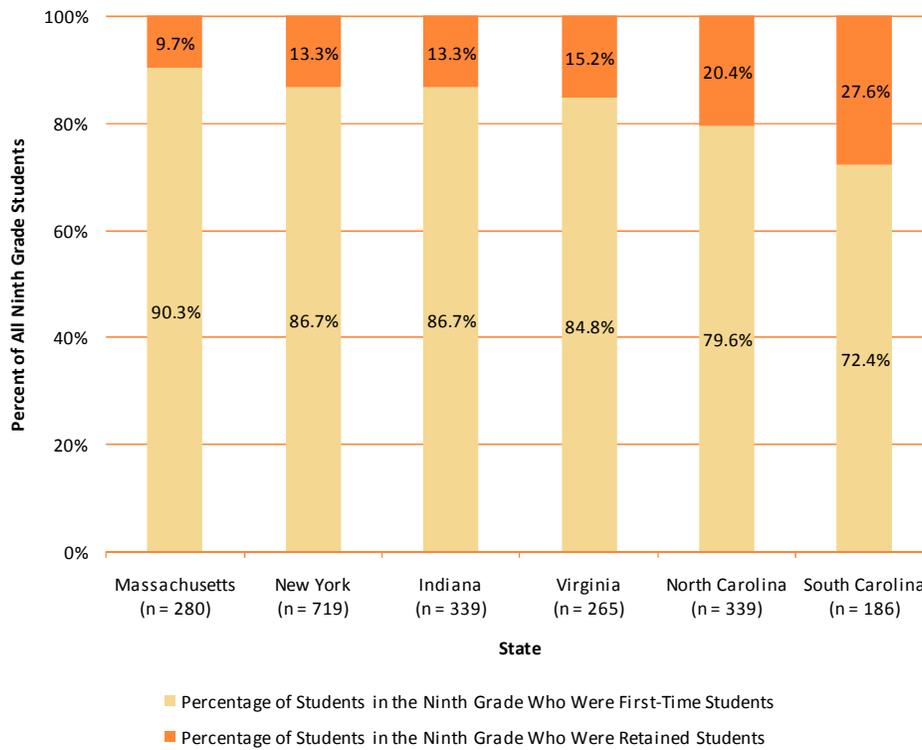
At the school-level, the average percentage of students who were in the ninth grade for the first time ranged from 91.3 percent in Massachusetts to 72.8 percent in South Carolina (See Table 2). Indiana's high schools had an average of 89.9 percent of students who were first-time ninth-graders, Virginia's high schools had an average of 88.5 percent, New York's high schools had an average of 88.2 percent, and South Carolina's high schools 80.8 percent. While the average percent of students who were first-time ninth-graders was above 70 percent

across schools in each of the states, a significant number of schools had *first-time ninth-grade estimates* below the state average (See Table 3). In Massachusetts, New York, Indiana, Virginia, and South Carolina, more than one-third of students attended schools with *first-time ninth-grade estimates* below the state average, and in South Carolina two-thirds of students attended a school below the state average (See Table 4).

Table 2: Average Percentage of Students Who Were in the Ninth Grade for the First-Time by Selected School Characteristics by State (All Regular High Schools)

School Characteristic	Massachusetts (n = 280)		New York (n = 719)		Indiana (n = 339)		Virginia (n = 265)		North Carolina (n = 339)		South Carolina (n = 186)	
	%	SD	%	SD	%	SD	%	SD	%	SD	%	SD
Locale												
City	81.9%	19.174	70.9%	28.222	76.8%	15.432	78.9%	11.785	74.7%	12.049	65.5%	15.807
Suburb	93.6%	8.407	91.3%	17.739	92.3%	9.802	86.6%	11.633	80.7%	7.237	76.4%	13.410
Town	87.1%	5.102	88.3%	8.866	90.6%	9.230	94.3%	8.600	80.7%	11.093	68.3%	11.748
Rural	94.7%	8.313	89.8%	11.330	92.0%	9.843	92.5%	8.600	83.0%	10.995	73.6%	11.766
School Size												
50 to 299	84.1%	23.830	80.9%	27.039	91.1%	7.686	90.7%	13.336	76.7%	22.579	75.9%	11.762
300 to 799	91.7%	11.943	89.3%	12.578	92.1%	9.818	94.1%	8.712	83.5%	10.391	70.6%	13.349
800 to 1,199	94.9%	8.372	85.9%	24.655	89.9%	12.301	91.0%	8.430	80.8%	9.094	71.7%	13.753
1,200 to 1,999	89.9%	11.035	90.0%	18.039	84.2%	14.890	83.6%	12.654	80.2%	11.567	75.6%	12.317
2,000 or more	85.5%	9.569	87.3%	14.357	87.2%	12.024	82.0%	9.635	74.8%	10.785	75.4%	12.387
Percent of Students Eligible for Free or Reduced-Price Lunch												
20% or less	94.7%	7.489	91.0%	17.047	94.1%	8.408	90.4%	11.254	83.2%	10.409	86.1%	7.332
21-39%	91.0%	11.045	88.6%	12.524	90.4%	9.513	88.3%	9.866	82.4%	9.405	78.2%	11.736
40% or more	79.9%	18.540	81.0%	23.680	78.8%	16.720	86.1%	14.084	78.0%	12.688	68.7%	12.340
Calculated Pupil/ Teacher Ratio (School Resources)[1]												
15 or less	91.7%	12.791	89.2%	16.294	88.0%	14.064	89.9%	10.732	81.1%	11.787	70.6%	13.706
16 to 19	89.8%	10.201	84.6%	22.694	90.3%	11.303	85.5%	11.588	80.8%	9.951	75.0%	12.387
20 or more	85.9%	10.948	77.9%	12.303	90.3%	11.310	73.7%	17.554	79.3%	13.670	72.4%	12.352
Percent Minority Students												
Less than 10%	94.4%	7.427	91.1%	11.004	92.5%	8.841	95.2%	7.558	84.4%	9.739	82.1%	14.510
10-49%	91.5%	12.052	92.7%	12.310	85.2%	14.133	89.8%	9.606	82.5%	8.694	77.3%	11.504
50-80%	81.9%	13.072	67.3%	35.514	68.5%	15.140	81.7%	11.403	78.2%	14.162	69.8%	10.799
81-89%	89.3%	19.270	72.6%	24.147	76.5%	20.669	81.2%	10.705	71.7%	8.809	69.5%	8.990
90% or more	73.3%	24.365	60.7%	26.073	69.5%	15.600	67.1%	12.590	71.1%	14.457	57.6%	10.531
Overall	91.3%	12.386	88.2%	17.632	89.9%	11.807	88.5%	11.436	80.8%	11.201	72.8%	13.121

[1]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.
Note: Includes only regular schools.

Table 3: School Percentages of First-Time Ninth-Graders: Number and Percentage of Schools by State, 2004-05 (All Regular High Schools)

Percentage of Ninth Grade Students Who Were First-Time Ninth Graders in 2004-05	Massachusetts (n = 280)		New York (n = 719)		Indiana (n = 339)		Virginia (n = 265)		North Carolina (n = 339)		South Carolina (n = 186)	
	n	%	n	%	n	%	n	%	n	%	n	%
60% or less	7	2.5%	36	5.0%	9	2.7%	7	2.6%	15	4.4%	39	21.0%
61 to 69%	9	3.2%	22	3.1%	11	3.2%	7	2.6%	31	9.1%	37	19.9%
70 to 79%	21	7.5%	62	8.6%	36	10.6%	42	15.8%	93	27.4%	51	27.4%
80 to 89%	63	22.5%	172	23.9%	82	24.2%	67	25.3%	137	40.4%	40	21.5%
90 to 100%	180	64.3%	427	59.4%	201	59.3%	142	53.6%	63	18.6%	19	10.2%
Total	280		719		339		265		339		186	

Note: Includes only regular schools.

Table 4: Number and Percent of High Schools Students by Percentage of First-Time Ninth-Graders by State, 2004-05 (All Regular High Schools)

Percentage of Ninth Grade Students Who Were First-Time Ninth Graders in	Massachusetts (n = 280)		New York (n = 719)		Indiana (n = 339)		Virginia (n = 265)		North Carolina (n = 339)		South Carolina (n = 186)	
	n	%	n	%	n	%	n	%	n	%	n	%
60% or less	4,791	1.8%	31,726	5.2%	14,153	4.6%	11,509	3.7%	19,512	5.1%	35,154	18.5%
61 to 69%	4,511	1.7%	22,330	3.7%	13,619	4.4%	9,413	3.0%	38,278	10.0%	37,049	19.5%
70 to 79%	30,553	11.3%	46,739	7.7%	35,033	11.4%	66,955	21.6%	115,008	30.0%	53,410	28.1%
80 to 89%	63,494	23.6%	131,782	21.7%	74,356	24.1%	87,515	28.3%	148,314	38.7%	42,385	22.3%
90 to 100%	166,021	61.6%	375,789	61.8%	171,004	55.5%	134,026	43.3%	62,362	16.3%	22,300	11.7%
Total	269,370		608,366		308,165		309,418		383,474		190,298	

Note: Includes only regular schools.

Adding the previously identified school characteristics to the analysis of average rates of first-time ninth-graders reveals no apparent pattern across locale and school size. It does, however, reveal a clear decrease in rates of first-time ninth-grade students as schools' student bodies become more impoverished, have higher concentrations of minority students, and have fewer resources (see Table 2).

Social and Structural Contexts

To further examine the observed diminishing average percentage of first-time ninth-grade students as the levels of poverty and minority concentrations increase in high schools, regression analyses were used to model social and structural contexts simultaneously. The socioeconomic composition of a school (measured by the percent of students eligible for free or reduced-price lunch) was the strongest predictor of diminishing rates of first-time ninth-grade students (as indicted by negative standardized multiple regression coefficients) for four states (Massachusetts, Indiana, North Carolina, and South Carolina), the second strongest for New York, and the third strongest for Virginia (See Table 5). For New York and Virginia, the strongest predictor of diminishing rates of first-time ninth-grade students was minority concentration (measured by the percent of a school's student body that were minority/non-White students). The level of school resources (measured by the calculated pupil/teacher ratio) was not a significant predictor of rates of first-time ninth-graders when modeled with socioeconomic and racial/ethnic composition.

Another school characteristic that had a negative effect on rates of first-time ninth-grade students was the size of a school's student body (measured by school enrollment). For three states, Indiana, Virginia, and North Carolina, rates of first-time ninth-grade students diminished as the size of schools increased. School size had the largest negative effect in Virginia, a small positive effect in New York, and no effect in Massachusetts and South Carolina.

The only characteristic that decreased the ninth-grade retention rate was the physical location of a school, or urbanicity (which is an eight point scale from urban to rural). In Virginia, North Carolina, and South Carolina, as you move from urban to rural areas, rates of first-time ninth-grade students increased. Interestingly, urbanicity had a negative effect on rates of first-time ninth-grade students across New York high schools. This may be due to the large portion of New York high schools in suburban communities. As a group, these schools had the highest average rates of first-time ninth grade students (See Table 1 and 2).

As defined, minority concentration contains students who self-identify as American Indian/ Alaskan Native, Asian/Pacific Islander, Black, non-Hispanic, and Hispanic students (or simply stated as all non-White students). This approach, however, is limited as governmental, independent, and state reports have all shown that minority groups do not perform uniformly. Asian/Pacific Islander students generally perform better than their peers, while American Indian/Alaskan Native, Black, non-Hispanic, and Hispanic students generally perform worse (Hauser et. al. 2000; Swanson 2004; Balfanz and West 2006).

Table 5: Standardized Multiple Regression Coefficients for the Percentage of First-Time Ninth-Graders by State, 2004-05

Independent Variables	Massachusetts (n = 280)	New York (n = 719)	Indiana (n = 339)	Virginia (n = 265)	North Carolina (n = 339)	South Carolina (n = 186)
Urbanicity[1]	0.027 (0.446)	-0.113* (0.360)	-0.003 (0.312)	0.200** (0.313)	0.181** (0.301)	0.155* (0.482)
School Enrollment	-0.006 (0.001)	0.089* (0.001)	-0.143* (0.001)	-0.232*** (0.001)	-0.161* (0.001)	-0.074 (0.002)
Calculated Pupil/Teacher Ratio (School Resources)[2]	0.090 (0.054)	-0.072* (0.243)	0.050 (0.253)	-0.078 (0.259)	0.007 (0.215)	-0.030 (0.357)
Percent of Students Eligible for Free or Reduced-Price Lunch	-0.329** (0.067)	-0.144*** (0.032)	-0.304*** (0.045)	-0.223*** (0.045)	-0.219** (0.058)	-0.390** (0.080)
Percent Minority Students	-0.111 (0.059)	-0.526*** (0.029)	-0.250*** (0.041)	-0.283*** (0.029)	-0.114 (0.036)	-0.261* (0.053)
Intercept	94.437*** (2.754)	106.690*** (4.061)	96.054*** (5.076)	101.808*** (4.300)	86.873*** (4.685)	89.327*** (6.975)
R^2	0.197***	0.266***	0.293***	0.396***	0.159***	0.332***
R^2_{adj}	0.183***	0.260***	0.282***	0.384***	0.146***	0.313***

[1]Urbanicity is an eight point scale ranging from (1) large central city to (8) rural, outside CBSA.
[2]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.
Notes: Includes only regular schools. Standard error terms for each coefficient are presented in parentheses.
p < .05   **p* < .01   ***p* < .001

By replacing the minority concentration of a school in the before mentioned models with four variables representing the percentage of students who were American Indian/Alaskan Native, Asian/Pacific Islander, Black, non-Hispanic, and Hispanic, it was possible to uncover a more complex understanding of the effects of racial/ethnic composition on rates of first-time ninth-grade students[6]. While Massachusetts standardized coefficients remained relatively the same (with poverty as the only significant predictor), the negative effects of poverty observed in South Carolina became no longer significant (See Table 6). For four of the states (New York, Indiana, Virginia, and South Carolina), the percentage of a school's student body that was Black, non-Hispanic, had the strongest negative effect of any racial/ethnic group, and in three of these four states (Indiana, Virginia, and South Carolina) Black students were the only racial/ethnic group that negatively affected rates of first-time ninth-grade students. South Carolina was the only state that had a racial/ethnic minority (Asian/Pacific Islanders) that as a whole had a significant positive effect on rates of first-time ninth-grade students. New York was the only state where the percentage of Hispanic students had a negative effect on rates of first-time ninth-graders.

Table 6: Standardized Multiple Regression Coefficients for the Percentage of First-Time Ninth-Graders by State with Additional Covariates for Race/Ethnicity, 2004-05

Independent Variables	Massachusetts (n = 280)	New York (n = 719)	Indiana (n = 339)	Virginia (n = 265)	North Carolina (n = 339)	South Carolina (n = 186)
Urbanicity[1]	0.016 (0.444)	-0.117* (0.364)	0.003 (0.312)	0.219*** (0.316)	0.105 (0.312)	0.202** (0.484)
School Enrollment	-0.037 (0.001)	0.100** (0.001)	-0.168* (0.001)	-0.309*** (0.001)	-0.182** (0.001)	-0.091 (0.002)
Calculated Pupil/Teacher Ratio (School Resources)[2]	0.090 (0.054)	-0.077* (0.243)	0.042 (0.253)	-0.039 (0.268)	0.035 (0.214)	-0.033 (0.354)
Percent of Students Eligible for Free or Reduced-Price Lunch	-0.348** (0.072)	-0.119** (0.035)	-0.307*** (0.047)	-0.169** (0.047)	-0.248** (0.057)	-0.242 (0.084)
Percent American Indian/ Alaskan Native	0.102 (1.121)	-0.072* (0.205)	-0.015 (1.735)	0.076 (1.234)	0.133* (0.095)	0.023 (1.904)
Percent Asian/Pacific Islander	0.077 (0.119)	-0.101** (0.139)	0.048 (0.483)	0.103 (0.165)	-0.100 (0.277)	0.239*** (0.784)
Percent Black, Non-Hispanic	-0.138 (0.064)	-0.403*** (0.046)	-0.258*** (0.043)	-0.305*** (0.030)	-0.129 (0.036)	-0.335** (0.053)
Percent Hispanic	-0.012 (0.110)	-0.181*** (0.053)	0.013 (0.107)	-0.093 (0.109)	-0.099 (0.130)	-0.048 (0.346)
Intercept	94.240*** (2.772)	106.588*** (4.114)	96.428*** (5.111)	97.836*** (4.513)	90.186*** (4.672)	82.774** (7.178)
R^2	0.219***	0.271***	0.304***	0.415***	0.198***	0.374***
R^2_{adj}	0.196***	0.263***	0.287***	0.397***	0.178***	0.345***

[1]Urbanicity is an eight point scale ranging from (1) large central city to (8) rural, outside CBSA.

[2]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.

Notes: Includes only regular schools. Standard error terms for each coefficient are presented in parentheses.

*p < .05   **p < .01   ***p < .001

Discussion

The evidence presented here not only contributes to the current research identifying the difficulties many students face during ninth grade, but also presents a valuable approach to identifying schools with large portions of struggling students who could greatly benefit from ninth-grade interventions. While *Promoting Power* has given us the ability to identify the roughly 2,000 schools in the United States where low graduation rates and high dropout rates are the norm, it is constrained by the lag in time it takes for a ninth-grade class to make it to the twelfth grade, and the inability to identify individual students. By combining *Promoting Power* with this new approach, the *first-time ninth-grade estimate*, it is possible to not only identify the nation's low performing schools, but also identify whether low *Promoting Power* was caused by a large portion of students being retained in ninth grade or students dropping out between the tenth and twelfth grades. If states were asked to report both first-time and total ninth-grade enrollments for schools and districts as part of the already publicly available fall membership reports, this would enable a much more accurate and timely examination of rates of ninth-grade retention.

In states like South Carolina, where 27.6 percent of the ninth-grade students were repeating ninth grade during the 2004-2005 school year, there were 39 schools with rates of first-time ninth-grade students of 60 percent or less, 37 schools with rates between 61 and 69 percent, 51 schools with rates between 70 and 79 percent, 40 schools with rates between 80 and 89 percent, and only 19 schools with rates of 90 percent or above. Eighteen percent of all South Carolina high school students attended the 39 schools with rates of first-time ninth grade students of 60 percent or less. This means that one-fifth of South Carolina high school students attend highs schools that may never be able to realize acceptable graduation rates without increased ninth-grade support and interventions.

Fortunately, researchers have focused on improving the outcomes of ninth grade students for more than ten years, developing ninth-grade academies/smaller learning communities (SLCs), ninth-grade transition courses, and specialized English/Language Arts and Math curricula. By adding newly available state school-level aggregated data and using student-level data systems to identify school failure early on, it is possible to not only target and tailor school interventions, but also identify students likely to be retained in ninth grade years before they arrive in high school.

Notes

[1]Independent analysis conducted by the author using data from the 2006-2007 Common Core of Data (CCD).

[2]Independent analysis conducted by the author using the 2007 National Household Education Surveys Program (NHES) Parent and Family Involvement in Education (PFI) data file.

[3]Independent analysis conducted by the author using the 2007 National Household Education Surveys Program (NHES) Parent and Family Involvement in Education (PFI) data file.

[4]Independent analysis conducted by the author using data from the 1996-1997 to the 2006-2007 Common Core of Data (CCD). The total twelfth grade enrollment and the total number diploma recipients for 2007-2008 was estimated using by using the proportion of the total number of twelfth grade students in 2006-2007 to the total number of eleventh grade students in 2005-2006 and the proportion of the total number of diploma recipients in 2005-2006 to the total number of twelfth graders in 2005-2006.

[5]For the Class of 2008, the following on-time graduation rates were reported on each state's education agency website: Massachusetts, 81.2 percent; New York, 73.6 percent; Indiana, 77.8 percent; Virginia, 81.3 percent; North Carolina, 69.9 percent; and South Carolina, 74.9 percent.

[6]The findings presented here show a strong correlation between income, minority concentration, (particularly for Black students) and rates of ninth-grade retention across the six states. As more states make first-time ninth grade data publically available, future analyses will examine the strength of these correlations and whether some states are doing better than others with the ninth-grade transition.

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Additional Tables

Table A1: Multiple Regression Coefficients for Percentage of First-Time Ninth-Graders by State, 2004-05

Independent Variables	Massachusetts (n = 280)	New York (n = 719)	Indiana (n = 339)	Virginia (n = 265)	North Carolina (n = 339)	South Carolina (n = 186)
Urbanicity[1]	0.179 (0.446)	-0.885* (0.360)	-0.017 (0.312)	0.950** (0.313)	0.843** (0.301)	0.997* (0.482)
School Enrollment	0.000 (0.001)	0.003* (0.001)	-0.003* (0.001)	-0.004*** (0.001)	-0.003* (0.001)	-0.002 (0.002)
Calculated Pupil/Teacher Ratio (School Resources)[2]	0.090 (0.054)	-0.508* (0.243)	0.241 (0.253)	-0.375 (0.259)	0.023 (0.215)	-0.150 (0.357)
Percent of Students Eligible for Free or Reduced-Price Lunch	-0.184** (0.067)	-0.130*** (0.032)	-0.225*** (0.045)	-0.162*** (0.045)	-0.146** (0.058)	-0.248** (0.080)
Percent Minority Students	-0.050 (0.059)	-0.344*** (0.029)	-0.150*** (0.041)	-0.126*** (0.029)	-0.051 (0.036)	-0.126* (0.053)
Intercept	94.437*** (2.754)	106.690*** (4.061)	96.054*** (5.076)	101.808*** (4.300)	86.873*** (4.685)	89.327*** (6.975)
R^2	0.197***	0.266***	0.293***	0.396***	0.159***	0.332***
R^2_{adj}	0.183***	0.260***	0.282***	0.384***	0.146***	0.313***

[1]Urbanicity is an eight point scale ranging from (1) large central city to (8) rural, outside CBSA.

[2]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.

Notes: Includes only regular schools. Standard error terms for each coefficient are presented in parentheses.

*$p < .05$ **$p < .01$ ***$p < .001$

Table A2: Multiple Regression Coefficients for Percentage First-Time Ninth-Graders by State, 2004-05

Independent Variables	Massachusetts (n = 280)	New York (n = 719)	Indiana (n = 339)	Virginia (n = 265)	North Carolina (n = 339)	South Carolina (n = 186)
Urbanicity[1]	0.107 (0.444)	-0.886* (0.364)	0.015 (0.312)	1.040*** (0.316)	0.486 (0.312)	1.300** (0.484)
School Enrollment	-0.001 (0.001)	0.003** (0.001)	-0.003* (0.001)	-0.005*** (0.001)	-0.004** (0.001)	-0.002 (0.002)
Calculated Pupil/Teacher Ratio (School Resources)[2]	0.089 (0.054)	-0.543* (0.243)	0.199 (0.253)	-0.189 (0.268)	0.123 (0.214)	-0.163 (0.354)
Percent of Students Eligible for Free or Reduced-Price Lunch	-0.195** (0.072)	-0.107** (0.035)	-0.228*** (0.047)	-0.123** (0.047)	-0.165** (0.057)	-0.154 (0.084)
Percent American Indian/ Alaskan Native	2.106 (1.121)	-0.455* (0.205)	-0.549 (1.735)	1.850 (1.234)	0.234* (0.095)	0.709 (1.904)
Percent Asian/Pacific Islander	0.149 (0.119)	-0.379** (0.139)	0.449 (0.483)	0.222 (0.165)	-0.482 (0.277)	2.537*** (0.784)
Percent Black, Non-Hispanic	-0.098 (0.064)	-0.425*** (0.046)	-0.177*** (0.043)	-0.142*** (0.030)	-0.061 (0.036)	-0.157** (0.053)
Percent Hispanic	-0.013 (0.110)	-0.243*** (0.053)	0.025 (0.107)	-0.154 (0.109)	-0.244 (0.130)	-0.256 (0.346)
Intercept	94.240*** (2.772)	106.588*** (4.114)	96.428*** (5.111)	97.836*** (4.513)	90.186*** (4.672)	82.774*** (7.178)
R^2	0.219***	0.271***	0.304***	0.415***	0.198***	0.374***
R^2_{adj}	0.196***	0.263***	0.287***	0.397***	0.178***	0.345***

[1]Urbanicity is an eight point scale ranging from (1) large central city to (8) rural, outside CBSA.

[2]Calculated Pupil/Teacher Ratio is a calculated variable (total reported students divided by total full-time equivalency classroom teachers) which is used as a proxy measure for available school resources and is not to be interpreted as a measure of classroom size.

Notes: Includes only regular schools. Standard error terms for each coefficient are presented in parentheses.

*p < .05   **p < .01   ***p < .001