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Measuring the Status and Change of NAEP State Inclusion Rates for Students with Disabilities

Research and Development Report

NCES 2009-453

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November 2008

Sami Kitmitto
Victor Bandeira de Mello
American Institutes for Research

Taslima Rahman
Project Officer
National Center for Education Statistics

U.S. Department of Education
Margaret Spellings
Secretary

Institute of Education Sciences
Grover J. Whitehurst
Director

National Center for Education Statistics
Mark Schneider
Commissioner

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1990 K Street NW
Washington, DC 20006-5651

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Content Contact

Taslima Rahman
(202) 502-7316
taslima.rahman@ed.gov

FOREWORD

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- Share studies and research that are developmental in nature. The results of such studies may be revised as the work continues and additional data become available;
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Such responses should be directed to

Marilyn Seastrom
Chief Statistician
Statistical Standards Program
National Center for Education Statistics
1990 K Street NW
Washington, DC 20006-5651

EXECUTIVE SUMMARY

Since the late 1990s, participation rates of students with disabilities (SDs) in the National Assessment of Educational Progress (NAEP) from different states have fluctuated. To address concerns that these changes may affect the validity of reports on achievement trends, NAEP has

- instituted policies for providing test accommodations for students with disabilities;
- developed a methodology to correct for the bias resulting from changing inclusion rates, and
- implemented procedures to increase the number of students with disabilities who are included as test-takers, such as better training of field staff, better procedures to assign proper accommodations for students, and improved communications with schools.

States' procedures for including and accommodating students with disabilities are also evolving.

To measure whether these strategies and changes are associated with higher state-by-state inclusion rates, we have developed two distinct approaches for comparing state inclusion rates with one another and gauging progress in their improvement over time. Both approaches rely on regression analysis to estimate the relationship between a student's characteristics and the probability that the student is included on the NAEP assessment. One approach, the nation-based one, estimates one regression using data pooled from all states. The other, the state-specific approach, estimates the regression separately for each state. The relationships are estimated using individual-level data and are then used to establish expectations (or predicted probabilities) for the inclusion of students with disabilities with different characteristics. Individual-level predicted probabilities are aggregated to the state level to form state-level expected inclusion rates. The two approaches examined changes in inclusion rates from 2003 to 2005 and from 2005 to 2007 for grades 4 and 8 mathematics and reading assessments.

For the comparison between 2005 and 2007 described in this report, the two approaches produced similar results when comparing the indices of baseline status of inclusion and change over time:

- The majority of states did not make a statistically significant change in the rate of inclusion.
- Among states that did show a significant change, most were less inclusive in 2007 than in 2005.
  - For the nation-based approach: 8 out of 15 states for mathematics grade 4 were less inclusive in 2007 than in 2005; 17 out of 19 states for mathematics grade 8; 18 out of 26 states for reading grade 4; 21 out of 25 states for reading grade 8.
  - For the state-specific approach: 17 out of 19 states for mathematics grade 8 were less inclusive in 2007 than in 2005; 12 out of 22 states for reading grade 4; 14 out of 18 states for reading grade 8.
  - The exception was for the state-specific approach for mathematics grade 4, where more of the states with significant changes had increases: 8 out of 15.
- Most of the states whose inclusion rate significantly increased in 2007 had a relatively low inclusion rate in 2005.
  - All states with significant increases in inclusion rates in 2007 had relative inclusion rates in the bottom 50 percent in 2005 with the exception of one state for the nation-based method for grade 8 mathematics.

- States whose inclusion rate significantly decreased in 2007 had varied relative inclusion rates in 2005.
- The expected (predicted) inclusion rates varied from state to state by grade and subject.

ACKNOWLEDGMENTS

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CONTENTS

LIST OF TABLES

Table **Page**

Table **Page**

Table **Page**

LIST OF FIGURES

Figure **Page**

INTRODUCTION

The purpose of the National Assessment of Educational Progress (NAEP) is to provide a reliable measure of achievement and trends in achievement at the national and state levels in several grades and subjects. Additionally, NAEP is supposed to report on the achievement of students with disabilities and students identified as limited English proficient (National Assessment of Educational Progress Authorization Act of 2002). Since the late 1990s, the rates at which sampled students with disabilities (SDs) participate (i.e., are included) in NAEP have fluctuated. Reporting of trends requires consistency in practices across years, and the lack of consistency in the inclusion of students with disabilities has called the validity of NAEP trends into question (Forgione 1999; McLaughlin 2000, 2001, 2003). To address these concerns, the National Center for Education Statistics (NCES), the administrator of NAEP, instituted policies for providing test accommodations and has supported the development of a methodology to correct for any bias resulting from changing inclusion rates.[1]

In July 2005, the U.S. Government Accountability Office (GAO) released the report *No Child Left Behind Act: Most Students with Disabilities Participated in Statewide Assessments, but Inclusion Options Could Be Improved*. In the report, the GAO recommended that NAEP "work with the states, particularly those with high exclusion rates, to explore strategies to reduce the number of students with disabilities who are excluded from the NAEP assessment." NCES responded with four actions:

- researched the local decision-making process for participation and accommodation decisions of students with disabilities on NAEP;
- implemented a decision tree that asks whether students could participate in NAEP without their normal state accommodations;
- improved training of NAEP administrators and field staff for 2007 assessments; and
- commissioned this study to develop a methodology for comparing state inclusion rates to one another and gauging progress in improving inclusion rates over time.

This report describes the methodological approach which calculates for each state an expected inclusion rate based on (a) its previous inclusion rates, (b) changes in the distribution of types of students with disabilities in the state, and (c) the set of accommodations offered by the state on its own tests. The method developed is applied to measuring changes from 2005 to 2007 for grades 4 and 8 mathematics and reading assessments.

This report is the first in a series of reports that explore methodologies to measure state-level changes in inclusion rates of students with disabilities as well as English language learners (ELLs). This report focuses on the inclusion of students with disabilities who are not English language learners. In the 2005 and 2007 mathematics and reading NAEP assessments, students with disabilities who were also English language learners made up 13.5 to 15.3 percent of all grade 4 students with disabilities and 16.1 to 19.2 percent of all grade 8 students with disabilities. However, because the factors influencing the inclusion of SDs and ELLs are distinct, we investigate their inclusion processes separately prior to modeling them jointly. We expect SDs who are also ELLs to be included on NAEP under a different process; hence expect that the model and, possibly, results will change by including them. Therefore, findings in this report may not be applicable to SDs who are ELLs or may be different when SDs who are ELL are included. The inclusion of ELLs and of SDs who are also ELLs will be addressed in subsequent reports.

1 For a methodological approach to correct for bias see McLaughlin (2003).

DISTRIBUTION OF TYPES OF STUDENTS WITH DISABILITIES

Provisions for the participation of an SD on NAEP differ by each student's characteristics. Table 1 shows weighted inclusion rates of students with disabilities with different characteristics: different types of disabilities, different severity levels of those disabilities, different grade levels of instruction on the subject being assessed (relative to their grade of enrollment), and whether the student received an accommodation on his or her state assessment that was not allowed on NAEP. For example, among all students with disabilities who were sampled for the 2005 mathematics grade 4 NAEP assessment and were identified with *a specific learning disability,* 85.1 percent participated on NAEP. From this table, it is clear that inclusion rates on NAEP vary by

- different types of disabilities;
- different severity levels of disabilities;
- different grade levels of instruction in the subject being assessed; and
- whether a student receives an accommodation on his or her state assessment that is not allowed on NAEP.

Table 1. Percentages of grades 4 and 8 public school students with disabilities who are not English language learners included in NAEP reading and mathematics assessments, by type of disability, severity level of disability, grade level of instruction, and use of non-NAEP accommodation on state assessment: 2005 and 2007

	2005				2007			
	Mathematics		Reading		Mathematics		Reading	
Characteristics	Grade 4	Grade 8	Grade 4	Grade 8	Grade 4	Grade 8	Grade 4	Grade 8
Disability type (not mutually exclusive)								
Learning disability	85.1	81.7	64.0	73.5	83.5	75.5	64.4	71.3
Speech impairment	85.8	71.1	75.0	63.4	85.6	66.7	77.6	58.7
Mental retardation	38.2	36.1	20.4	25.5	30.3	24.4	19.4	20.4
Emotion disturbance	76.6	76.8	62.7	72.1	72.2	67.2	61.4	70.5
Other disabilities	75.0	72.3	61.6	64.6	75.3	67.5	62.8	65.6
Disability severity level								
Severe	52.9	42.2	36.0	32.8	41.7	29.7	33.7	30.1
Moderate	79.1	72.8	61.4	63.5	76.8	63.2	59.9	59.6
Mild	92.3	86.6	77.1	80.1	91.2	80.8	79.3	77.5
Not reported	74.4	67.5	61.9	58.2	78.9	71.0	66.8	65.3
Grade level of instruction								
Same grade level or above	94.8	89.8	85.9	84.0	93.6	82.7	85.5	81.4
One year below grade	83.0	83.7	68.7	81.2	84.4	75.1	69.5	75.4
Two years or more below grade	51.9	58.1	39.9	51.2	52.2	50.8	41.7	48.4
Not reported	76.4	68.8	63.7	63.0	77.3	70.2	65.7	63.6
Received accommodation on state assessment that is not allowed on NAEP								
No	86.2	83.3	76.8	78.4	86.6	80.3	76.2	75.5
Yes	58.4	56.4	42.1	47.4	51.5	39.3	31.9	34.9

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics and Reading Assessments.

Variation in the distribution of characteristics of students with disabilities across states is demonstrated in table 2, which shows the average, standard deviation, and range of state-level percentage of students with disabilities with each characteristic.[2] For example, the average state-level percentage of students with disabilities with a *specific learning disability* in the 2007 NAEP grade 4 mathematics assessment was 45.8 percent, but this ranged from 14.7 percent in Kentucky to 63.3 percent in the District of Columbia.

Table 2. Average, standard deviation, and range of state-level percentage of students with disabilities by each characteristic, NAEP grade 4 mathematics: 2007

Characteristics	Average (percent)	Standard deviation	Range of percents	
			Min	Max
Disability type (not mutually exclusive)				
Learning disability	45.8	8.7	14.7	63.3
Speech impairment	28.3	8.2	7.2	48.0
Mental retardation	6.0	2.8	1.6	13.2
Emotion disturbance	5.0	2.7	1.2	13.3
Other disabilities	30.2	6.4	16.4	42.7
Disability severity level				
Severe	7.7	3.3	2.3	15.0
Moderate	35.1	9.3	12.3	57.6
Mild	47.5	10.8	25.9	74.5
Not reported	9.8	4.8	2.5	26.2
Grade level of instruction				
Same grade	46.5	9.0	18.4	63.9
One year below grade	19.8	4.2	10.0	27.0
Two years or more below grade	22.6	6.4	7.8	44.3
Not reported	11.1	3.9	4.2	26.2
Received accommodation on state assessment that is not allowed on NAEP				
Yes	15.2	9.7	2.0	47.5

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2007 Mathematics Assessments.

PARTITIONING CHANGES IN STATE-LEVEL INCLUSION RATES

For NCES to track changes in state-level inclusion rates of students with disabilities on NAEP, the goal is to decompose those changes into a portion explained by changes in the distribution of SD characteristics (type of disability, severity of disability, and grade level of instruction) and another, an *unexplained* portion, capturing changes in NCES policy and practices, state efforts, and other factors. As such, in this report, we develop a *partitioning* technique that is based on and akin to Oaxaca-Blinder decomposition techniques (Oaxaca 1973; Blinder 1973).[3] Oaxaca-Blinder decomposition techniques are typically used in studies of discrimination in which differences in an outcome variable, such as different wages for Blacks and Whites, are broken

2 The average given is an average of state-level figures. It is not weighted by the number of students with disabilities in each state and hence does not represent the average prevalence of a characteristic across the country.

3 Fairlie (2003) extended Oaxaca-Blinder decomposition techniques to nonlinear models.

down into two portions, one that can be explained by differences in underlying characteristics thought to affect the outcome, such as years of education and experience, and another that is explained by differences in how those characteristics are treated/rewarded, which is interpreted as discrimination. Our *partitioning* employs Oaxaca-Blinder decomposition techniques but does not delve as deeply in to explanation or interpretation of the portion not explained by differences in underlying characteristics.

The Oaxaca-Blinder decomposition technique measures the portion of mean group differences attributed to differences in underlying characteristics by fixing the individual-level relationship between observed characteristics and outcome. Similarly, our *partitioning* technique fixes the individual relationship between observed characteristics and outcome. This relationship provides a predicted outcome for each individual that is based on his or her characteristics. The difference between two groups' predicted outcomes (Predicted Outcome for Group 2 minus Predicted Outcome for Group 1) determines the portion of the actual difference in outcome (Actual Outcome for Group 2 minus Actual Outcome for Group 1) that is attributed to differences in observed characteristics. The Oaxaca-Blinder analysis simultaneously goes on to analyze and explain the remaining portion as differences in treatment and, hence, discrimination. Here, in our *partitioning,* the remaining portion of the actual difference that is not explained by differences in observed characteristics is attributed to *other* factors.

In the application of our partitioning methodology, we are comparing two groups: a state's SD sample in the initial period and that same state's SD sample in the second period. Here, the initial period is the 2005 NAEP administration and the second period is the 2007 NAEP administration. We use student-level logistic regression models to estimate the relationship between the probability of inclusion on NAEP (dependent variable or outcome) and the observable SD characteristics (the control variables). The estimated coefficients from this regression are used to calculate predicted probabilities of inclusion for all students in each year. These predicted probabilities are aggregated to the state level to get a state-level predicted inclusion rate. The difference between the state's 2007 and 2005 predicted inclusion rates determines how much of the overall difference in inclusion rates is due to differences in the distribution of SD characteristics. The remaining portion of the overall difference is called our *change measure.* The change measure is the primary focus of this report because it is the portion of change that is not due to factors that we expect to cause natural variation in inclusion rates. The methodology is illustrated in figure 1 for the linear case. Our application is to a nonlinear case, which is more complex, but the principles illustrated are the same.

Variation in the application of the Oaxaca-Blinder technique is found in how the individual-level relationship between observed characteristics and outcome is estimated. Different approaches to fixing this relationship can lead to different results. One variation that has been used is to pick one of the two groups as a reference group and estimate the relationship using only individuals in that group. Another variation is to pool the two groups and estimate the relationship using all individuals. Other variations on the estimation of the individual-level relationship exist. Though different variations may lead to different results, each result is still interpreted as a decomposition of the differences between groups. We have the same potential for variation in the application of our methodology for partitioning.

In this study, we develop two approaches to fixing the relationship between observed characteristics and outcome. One is the nation-based approach, in which all the students with disabilities in the initial period (2005, in this report) NAEP sample are used as the reference group for fixing the individual-level relationship between the characteristics of a student and his or her probability of inclusion on NAEP. The second, the state-specific approach, fixes the relationship between the characteristics of a student and his or her probability of inclusion separately for each state, using only that state's initial period (2005, in this report) NAEP SD sample. The benefit of the nation-based approach is that owing to pooling the data across states for estimation, it is possible to use more interactions between the control variables when establishing the relationship between student characteristics and probability of inclusion. The benefit of the state-specific approach is that a separate relationship is estimated for each

state, thus circumventing potential bias resulting from differences between states that might be systematic, such as different definitions of disability used in each state. Neither approach pools data across time periods. Both approaches can, hence, be interpreted as using the initial period as the reference period and as the basis for forming expectations for the second period.

Figure 1. Algebra of the partitioning technique for a linear case

For a given state, let $\overline{Y}_1$ be the inclusion rate in 2005 and $\overline{Y}_2$ the inclusion in 2007. Let $\overline{X}_1$ and $\overline{X}_2$ be the mean vector of control characteristics in 2005 and 2007, respectively. If $\hat{\beta}^*$ is the reference vector of coefficients relating control characteristics to inclusion probability, then $\overline{X}_1\hat{\beta}^*$ is the predicted inclusion rate for state in time period 1 and $\overline{X}_2\hat{\beta}^*$ is the predicted inclusion rate for state in time period 2.

The actual inclusion rate equals the predicted inclusion rate plus a difference, D_1 and D_2, for time periods 1 and 2 respectively.

$$\overline{Y}_1 = \overline{X}_1\hat{\beta}^* + D_1$$
$$\overline{Y}_2 = \overline{X}_2\hat{\beta}^* + D_2$$

The actual difference in inclusion rates, $\overline{Y}_2 - \overline{Y}_1$, can be partitioned in a portion explained changes in controls, $\left(\overline{X}_2\hat{\beta}^* - \overline{X}_1\hat{\beta}^*\right)$, and a portion not explained, $\left(D_2 - D_1\right)$:

$$\underbrace{\overline{Y}_2 - \overline{Y}_1}_{\text{Difference in inclusion rates}} = \underbrace{\left(\overline{X}_2\hat{\beta}^* - \overline{X}_1\hat{\beta}^*\right)}_{\text{Portion explained by differences in controls}} + \underbrace{\left(D_2 - D_1\right)}_{\text{Portion not explained by differences in controls}}$$

The change measure factors out the portion explained by differences in control variables and, hence, is

$$Change = D_2 - D_1 = \left(\overline{Y}_2 - \overline{X}_2\hat{\beta}^*\right) - \left(\overline{Y}_1 - \overline{X}_1\hat{\beta}^*\right).$$

In addition to providing measures of change in inclusion rates over time, we provide a context for this change by comparing states' inclusion rates on NAEP in the initial period. We refer to this as the measure of the *starting point* for each state. Even when we hold constant the different types and severities of disabilities and the different accommodations offered by the states for their own state assessments, not all states start with the same inclusion rate of SDs on NAEP. We expect to observe less change in NAEP inclusion rates in states that initially include SDs at relatively higher rates than other states. Hence, the starting point measure is intended to be a context for understanding the change measure. The use of the starting point measure vis-à-vis the change measure is discussed in detail below.

SUMMARY

Students with disabilities with different characteristics are included at different rates and the distribution of such characteristics differs across states and across time. Hence, the rate of inclusion of SDs on NAEP is expected to vary across states and across time. At the same time, because of NCES's efforts, states are improving their procedures for including and accommodating SDs on NAEP. We estimate an expected rate of inclusion for each state on the basis of its distribution of SD characteristics. Using this predicted inclusion rate, we then partition the total change in inclusion rates over time into a portion explained by observed changes in the distribution of SD characteristics (i.e., the expected change) and into a remaining portion attributable to other factors (e.g., NCES's efforts). If a state's change in the inclusion rate for SDs on NAEP is greater than the change expected (i.e., due to changes in the distribution of SD characteristics), it is considered a positive change or *progress.* The measure of change developed here provides NCES with an indicator for how its efforts and other factors relate to state-level NAEP inclusion rates holding SD characteristics and state assessment accommodations constant.

Two approaches were developed for applying this methodology. Both approaches were tested using 2003 and 2005 NAEP data. In this report, they are applied to 2005 and 2007 NAEP data to look at changes in state-level inclusion rates from 2005 to 2007. Additionally, we develop a method for comparing inclusion rates across states at a given point to provide context for the measure of change.

The concepts and measurement methods applied in these analyses are limited by existing data. NAEP data about students' disabilities do not have the level of detail necessary to create absolute rules for inclusion of SDs (i.e., a normative determination of whether any given student should be included). The concepts for measuring improvement in inclusion rates are relative to a set benchmark, the predicted inclusion rate, which is intended to be a *point of reference*, not a *goal*. The measures are relative in content (e.g., "NAEP's inclusion rate in State *X* is *higher/lower* than the benchmark"), not normative (e.g., "NAEP's inclusion rate in State *X* is a *better/worse* inclusion rate than it *should be*").

This report is limited to the discussion and application of methods for measuring change in state-level inclusion rates. Not included here are discussions of the explanations, other than methodological, behind reported results or the implications of these results for policy.

METHODOLOGY

OVERVIEW

Measure of Change Over Time

Inclusion rates can vary among states and across time owing to[4]

- differing proportions of students with different types and severities of disability;
- differing accommodations offered by the states for their own state assessment tests;
- measures taken by NCES to increase the number of students with disabilities who are included; and
- other factors not associated with characteristics of the states' SD population or policies for accommodations on their own state assessment tests.

The motivation behind this report is that state-level inclusion rates are *expected* to vary according to differing proportions of students with different types and severities of disabilities and the offering of accommodations on the state assessment that are not allowed on NAEP. Variations that result from other factors that we cannot measure, such as actions taken by NCES, are not standard and are meant to be captured by our change measure. This breakdown lends itself to an analogy to studies that attempt to measure discrimination. In the discrimination case, wages are *expected* to vary according to certain demographic characteristics, such as education and experience. However, wages can also vary because of factors we cannot measure, such as discrimination. Studies of discrimination have commonly used the Oaxaca-Blinder technique to decompose differences in wages into a portion that is expected and a portion that is not. The similarities to the discrimination application motivated us to borrow from Oaxaca-Blinder decomposition for the development of our methodology for measuring change.

The Oaxaca-Blinder decomposition technique partitions the difference of the means between two groups into a portion explained by differences in control variables and a portion that is explained by differences in how those characteristics are treated/rewarded. In the discrimination application, it is the difference in the mean wages between women and men, for example. In our application, it is the difference between a state's inclusion rate in the initial period, 2005, and in the second period, 2007. Because our focus is on a state-by-state analysis and not on a national analysis, we need to apply the technique 51 times: one for each state and the District of Columbia.

Both the Oaxaca-Blinder decomposition technique and our partitioning technique measure the portion of mean group differences attributed to differences in underlying characteristics by fixing the individual-level relationship between observed characteristics and outcome. In both techniques, this relationship is held constant across groups being compared. In the application of our partitioning technique, as described further below, this fixed relationship acts as the yardstick for comparison.

We use Fairlie's (2003) framework for Oaxaca-Blinder decomposition in the non-linear case to explain the differences and similarities with our partitioning technique. Fairlie provides the

4 A discussion of how these factors affect inclusion rates is provided later in this report.

following equation for the Oaxaca-Blinder decomposition of different outcomes between blacks and whites in a non-linear case:[5]

$$\overline{Y}^W - \overline{Y}^B = \left[\sum_{i=1}^{N^W} \frac{F(X_i^W \hat{\beta}^W)}{N^W} - \sum_{i=1}^{N^B} \frac{F(X_i^B \hat{\beta}^W)}{N^B}\right] + \left[\sum_{i=1}^{N^B} \frac{F(X_i^B \hat{\beta}^W)}{N^B} - \sum_{i=1}^{N^B} \frac{F(X_i^B \hat{\beta}^B)}{N^B}\right],$$

where

$\overline{Y}^W - \overline{Y}^B$ is the difference in overall mean outcome between whites and blacks, respectively;

$F(\bullet)$ is a non-linear function;

X_i^W and X_i^B are vectors of control variables for whites and blacks, respectively;

N^W and N^B are the number of observations for whites and blacks, respectively; and

$\hat{\beta}^W$ and $\hat{\beta}^B$ are the vectors of coefficients from the non-linear regressions estimated for whites and blacks, respectively.

The term in the first set of brackets is the portion of the difference in overall means that is due to different distributions of the control variables while the second set of brackets contains the portion that is due to differences in overall group average outcome.

Our partitioning technique diverges from the Oaxaca-Blinder decomposition by simply subtracting out the portion in the first bracket from the difference in overall means and using the remainder as our *change measure*.

$$Change = \left[\overline{Y}^2 - \overline{Y}^1\right] - \left[\sum_{i=1}^{N^2} \frac{\Lambda(X_i^2 \hat{\beta}^*)}{N^2} - \sum_{i=1}^{N^1} \frac{\Lambda(X_i^1 \hat{\beta}^*)}{N^1}\right]$$

Where:

$\overline{Y}^2 - \overline{Y}^1$ is the difference in overall mean outcome between periods 2 and 1, respectively;

$\Lambda(z) = \frac{e^z}{1+e^z}$ is the logistic cumulative distribution function;

X_i^2 and X_i^1 are vectors of control variables for period 2 and period 1, respectively;

N^2 and N^1 are number of observations for period 2 and period 1, respectively; and

$\hat{\beta}^*$ is a vector of regression coefficients.

In both the Oaxaca-Blinder decomposition and our partitioning technique, the relationship between outcome and controls, $\hat{\beta}^W$ and $\hat{\beta}^B$ in the Oaxaca-Blinder equation and $\hat{\beta}^*$ in our partitioning equation, is estimated by using regression analysis at the individual level. Within the Oaxaca-Blinder framework and our partitioning technique, how these coefficients are derived can vary. In particular, the population on which this relationship is estimated can vary and will, hence, provide slightly different measures.

In this vein, we developed two approaches to applying our partitioning technique for measuring change in state-level inclusion rates over time: the nation-based approach and the

5 Fairlie (2003), p 2.

state-specific approach.[6] The two approaches differ in how the relationship between inclusion on NAEP and student characteristics, $\hat{\beta}^*$, is estimated:

- In the nation-based approach, one regression on initial-period national data is used to fix the relationship between inclusion on NAEP and SD characteristics. Change in each state is measured using that same estimated relationship.
- In the state-specific approach, a regression model is estimated separately for each state to fix the relationship between inclusion on NAEP and student characteristics. The regression is estimated for each state using that state's SD sample in the initial year.

Once the relationship is fixed in the form of the estimated coefficients, it is applied to the states' data (to the initial and second period data under the nation-based approach; to the second period data alone in the state-specific approach) to provide individual-level predicted probabilities of inclusion for each student. The predicted probabilities for each student are based on his or her control characteristics. Within each state in each time period, the student-level predicted probabilities are aggregated to the state level to provide a state-level predicted inclusion rate. As an aggregation of student-level predicted probabilities, the predicted inclusion rate for each state in each period is based on the state's distribution of student characteristics. The predicted inclusion rates for each state in each time period is then compared with the actual inclusion rate, and the differences are then used to construct the change measure as in the discrimination examples above. Exact details and formulas for estimation, aggregation, and measure determination are provided below separately for each approach.

Measure of Starting Point

In addition to providing the measures of change in inclusion rates over time described above, we provide a context for this change by comparing states' inclusion rates on NAEP in the initial period. We refer to this measure as the *starting point* for each state. Even when we hold constant different types and severities of disabilities and different accommodations offered by the states for their own state assessments, not all states start with the same inclusion rate for NAEP. In some states, SDs are initially included at higher rates than in others; therefore, we would expect less change in including students in these states.

Each approach to measuring change is discussed below, and the discussion includes explanations of how the measure of *starting point* is calculated. The use of the starting point measure vis-à-vis the change measure is also discussed in detail below.

A separate starting point measure was developed for each of the nation-based and state-specific approaches to measuring change. Those different starting point measures were designed for the approaches under which they were developed, but both can be used with either approach. We present them without preference because each has its benefits and drawbacks.

- In the nation-based approach, the same estimated regression model used to fix the relationship between inclusion on NAEP and SD student characteristics is also used to calculate differences between states in the initial period. In other words, we use previously calculated results to construct the starting point measure.
- In the state-specific approach, the regressions estimated to calculate the change measure are state specific and cannot be used to compare states or provide a starting point measure. For this reason, a separate regression model is estimated on the entire NAEP SD

6 The terms nation-based and state-specific describe the different approaches and, in particular, how the relationship between inclusion and SD characteristics is fixed. All analysis of change is done on a state-by-state basis.

sample in the initial period to generate a starting point measure. The model is the same as that used under the nation-based approach but includes state fixed effects.

Building on the Oaxaca-Blinder methodology used to measure change, we similarly fix the relationship between control and outcome variables to provide individual-level predicted probabilities. The individual-level predicted probabilities serve as a basis of comparison. Details and formulas for estimation, aggregation, and measure determination are provided below separately for each approach.

NATION-BASED APPROACH

In the nation-based approach, one regression on national data is used to fix the relationship between inclusion on NAEP and SD student characteristics. Here, the entire NAEP sample for the initial year is used to estimate the relationship between student characteristics and the probability of inclusion with no differences between states explicitly modeled. The estimated coefficients are applied to each year of data to provide a predicted probability of inclusion for each SD. The *average* predicted probability of inclusion for all students with a disability in a given state in a given year is then the benchmark for that state for that year, or, in other words, that state's predicted inclusion rate for that year. Whereas the predicted probability for a student with a given set of characteristics is fixed by the model and does not change across states or time, the predicted inclusion rate for each state is different and changes across time because of differences in the populations of SDs.

In practice, the nation-based approach is based on the following regression model:

$$Included_i = \Lambda\left(\alpha + \sum_j \sum_l \sum_k \left(\beta_{j,l,k} \cdot DisabilityType_i^j \cdot SeverityType_i^k \cdot GradeLevel_i^l\right) + \varphi \cdot NonNaepAcc_i\right),$$

where

$Included_i$ = 1 if student i was included on the NAEP assessment; 0 otherwise;

$\Lambda(z) = \frac{e^z}{1+e^z}$ is the logistic cumulative distribution function;

$DisabilityType_i^j$ = 1 if student i has disability type j; 0 otherwise;

$SeverityType_i^k$ = 1 if student i has disability severity level k; 0 otherwise;

$GradeLevel_i^l$ = 1 if student i is receiving instruction at grade level l; 0 otherwise;

$NonNaepAcc_i$ = 1 if student i receives an accommodation on state assessments not allowed on NAEP; 0 otherwise;

$\alpha, \beta_{j,l,k}, \varphi$ are coefficients to be estimated; and

i indexes students, j indexes disability types, k indexes severity levels, and l indexes grade levels of instruction.

This logistic regression is estimated using initial period student-level data and respective sampling weights.[7] The interpretation of this regression is that it provides the *average rate of inclusion* for students with a given set of characteristics in the initial period across the nation. These averages then become our yardstick for measuring state-level changes in inclusion.

7 All estimations and aggregations to state-level statistics use the individual NAEP weights assigned to the data. For details on the use of weights see appendix A.

Included in the model are indicators for the student's type of disability, severity level of disability, and grade level.[8] Each of these measures is crossed with the others so that there is a unique indicator variable for each disability, severity level, and grade level combination. Different disabilities are more or less easy to accommodate on NAEP assessments, and some disabilities hinder learning more than others. Students with disabilities that are classified as severe are expected to be included less often than students whose disabilities are classified as moderate or mild. Grade level of instruction is also an indicator of how severe the disability is. The measure of grade level of instruction is measured on a more objective scale than severity level and additionally is subject specific (mathematics or reading). Also part of the model is an indicator for whether the student received an accommodation on his or her state assessment that was not allowed on NAEP. Students who receive an accommodation on their state assessment that is not allowed on NAEP are expected to be included less often, other things being equal, because the respondent to NAEP's SD Background Questionnaire may judge NAEP's accommodations to be inadequate for the student in question. (See the Data section for further information on the questionnaire.)

Under the nation-based approach, change over time is measured by the change in the difference between the actual inclusion rate and the predicted inclusion rate. State-level actual and predicted inclusion rates are calculated as follows:[9]

$$StateLevelPredicted_s^y = \frac{1}{N_s^y}\sum_{i=1}^{N_s^y} \hat{I}ncluded_i^0 \cdot Weight_i ,$$

$$StateLevelActual_s^y = \frac{1}{N_s^y}\sum_{i=1}^{N_s^y} Included_i^y \cdot Weight_i ,$$

$$DistAbovePredicted_s^y = StateLevelActual_s^y - StateLevelPredicted_s^y ,$$

where

$\hat{I}ncluded_i^0$ is the predicted probability of inclusion for student i, based on the initial period (time=0) model;

$Included_i^y$ = 1 if student i was included on the NAEP assessment in time period y; 0 otherwise;

$Weight_i$ = sampling weight for student i;

N_s^y is the sum of weights of all students with disabilities in state s at time period y; and

i indexes students, s indexes states, and y indexes time period (initial=0, second=1).

Change over time for a state is measured by the change in the *distance above the predicted* measure:

$$Change_s = DistAbovePredicted_s^1 - DistAbovePredicted_s^0$$

As an example, if a state's initial-period actual inclusion rate is 3 percentage points above its initial-period predicted inclusion rate (*distance above predicted* in initial period is 3 percentage points), and its second period actual inclusion rate is 5 percentage points above its second-period predicted inclusion rate (*distance above predicted* in initial period is 3 percentage

8 See table 7 for a list of disabilities, severity levels, and grade levels used in the analysis.

9 State-level predicted inclusion rates and distance above the predicted inclusion rate measures are essentially based on average inclusion rates across the country. In preparation of this study, we explored presenting recentered distance above the benchmark measures. A discussion of the rationale along with the recentered results are presented in appendix C.

points), this is an improvement of 2 percentage points. It would also be an improvement of 2 percentage points if a state's initial-period actual inclusion rate is 4 percentage points *below* its initial-period state-level benchmark inclusion rate and its second-period actual inclusion rate is 2 percentage points *below* its second-period benchmark inclusion rate. Improvement is, therefore, movement upward relative to the state-level benchmark inclusion rate and can be an increase in the distance above the benchmark, a decrease in the distance below the benchmark, or movement from below the benchmark to above the benchmark.

Starting Point

To provide the context for the change measure, we compare states in the initial period, the starting point, under each approach. The rationale for providing a starting point measure is that states that initially have a high relative inclusion rate have less room for improvement than states that have a relatively lower inclusion rate to begin with. Hence, a measure of how states compare in relative inclusiveness is a useful context for helping understand the change measure. If a state has a high relative inclusion rate in the starting period, we would not expect a positive change measure. The starting point measure is useful only for comparing states in the period under consideration over which change is measured.

In the nation-based approach, the starting point measure for a state is simply that state's initial-period *distance above predicted* inclusion rate. For example, if State X has an initial *distance above predicted* of −1.1 and State Y has an initial-period *distance above predicted* of −5.5, we conclude that State X has a higher starting point measure than State Y.

$$StartingPoint_s = DistAbovePredicted_s^0$$

STATE-SPECIFIC APPROACH

In the state-specific approach for measuring change, the regression that estimates the relationship between a student's characteristics and the probability of inclusion is calculated separately for each state in the initial period, providing a (potentially) unique yardstick for measurement for each state. Because the regression model is estimated for each state using that state's data in the initial period, it will produce student-level predicted probabilities for that state *in the initial period* that will exactly return the state's actual inclusion rate of that state in the initial period when aggregated to the state level. Hence, to measure change, we need only apply the estimated student-level predicted probabilities to the second year of data.[10]

The intuition behind the state-specific approach is that change in each state is measured relative to itself because a separate yardstick is set up for each state on the basis of that state's initial period data. The predicted probabilities of inclusion for different types of SDs estimated using the initial period data in State X are used as expectations for inclusion of different types of SDs in State X in the second period. The relationship between inclusion and student characteristics that is used as a yardstick is not set by national averages, as it is in the nation-based approach, but is set separately for each state by its own state averages. Unlike the model in the nation-based approach, this model does not include a control for students who receive an accommodation on their state assessment that is not allowed on NAEP. This omission is discussed further below.

10 In other words, were we to apply the student-type benchmarks to the data on which they were estimated, we would end up with a state-level benchmark for the initial period that exactly equaled the state-level actual rate of inclusion for the initial period.

This model used in this approach is as follows:[11]

$$Included_{i,s} = \Lambda\left(\begin{array}{l}\alpha_s + \sum_j \sum_k \beta_{j,k,s} \cdot DisabilityType_{i,s}^{j} \cdot SeverityType_{i,s}^{k} \\ + \sum_l \gamma_{l,s} \cdot GradeLevel_{i,s}^{l}\end{array}\right), \text{ for each state } s$$

where

$Included_{i,s}$ = 1 if student i in state s was included on the NAEP assessment; 0 otherwise;

$\Lambda(z) = \frac{e^z}{1+e^z}$ is the logistic cumulative distribution function;

$DisabilityType_{i,s}^{j}$ = 1 if student i in state s has disability type j; 0 otherwise;

$GradeLevel_{i,s}^{l}$ = 1 if student i in state s is receiving instruction at grade level l; 0 otherwise;

$SeverityType_{i,s}^{k}$ = 1 if student i in state s has disability severity level k; 0 otherwise;

α_s, $\beta_{j,k,s}$ and $\gamma_{l,s}$ are coefficients to be estimated; and

i indexes students, j indexes disability types, k indexes severity levels, l indexes grade levels of instruction, and s indexes states.

This logistic regression is estimated separately for each state using that state's initial period student-level data and respective sampling weights. For each state, this estimated model is applied to the state's second year of data to provide a predicted probability of inclusion for each student with a disability in that state in the second period. This predicted probability for each student is based on that student's characteristics. Because the model is estimated separately for each state, each state will (potentially) have a different predicted probability for any given set of student characteristics. The state-level predicted inclusion rate for a state for the second year is the average of the predicted probabilities of inclusion for all students with disabilities in the state in the second year. The measure of change over time is the difference between a state's actual second-period inclusion rate and its state-level benchmark inclusion rate.

In this state-specific approach, we use the same formulas for aggregation and measure construction as in the nation-based approach. However, the formulas can be simplified here because the relationship between inclusion and the control characteristics was estimated using data from each state's initial-year data only. Therefore, in the initial period, the state's predicted inclusion rate will exactly equal the state's actual inclusion rate.

$$StateLevelPredicted_s^0 = \frac{1}{N_s^0} \sum_{i=1}^{N_s^0} \hat{I}ncluded_i^0 \cdot Weight_i$$

$$= \frac{1}{N_s^0} \sum_{i=1}^{N_s^0} Included_i^0 \cdot Weight_i$$

11 An alternative model for the state-specific model was developed but not pursued in this report. Under the alternative model, all data were pooled for estimation of a random coefficients logit model that estimated separate coefficients for each state. Results were very similar to those using the model presented here that estimates a logistic regression separately for each state.

$$= StateLevelActual_s^0$$

Hence, the distance above the predicted inclusion rate for initial period is zero.

$$DistAbovePredicted_s^0 = StateLevelActual_s^0 - StateLevelPredicted_s^0 = 0$$

The change measure then reduces to only the distance above the predicted inclusion rate for the second period.

$$\begin{aligned} Change_s &= DistAbovePredicted_s^1 - DistAbovePredicted_s^0 \\ &= DistAbovePredicted_s^1 - 0 \\ &= DistAbovePredicted_s^1 \end{aligned}$$

As an example, if a state's actual second-period inclusion rate is 2 percentage points above its state-level predicted inclusion rate (i.e., the inclusion rate predicted by the initial-period model), this is considered an improvement of 2 percentage points. If, instead, a state is 3 percentage points *below* its predicted inclusion rate in the second period, this is a 3 percentage point decline in the rate of inclusion.

Starting Point

In the nation-based approach, the relationship between student characteristics and the probability of inclusion, or yardstick, was the same across all states. Hence, it was possible to turn this into a comparison of states in the initial period, 2005. In the state-specific approach, however, the relationship between student characteristics and the probability of inclusion used for measuring change across time is specific to each state and cannot be used to make comparisons among states at any given time. In other words, measurements using different yardsticks cannot be compared. Hence, a second regression, estimated on the sample including all states in the initial period and their respective weights, is used to make comparisons among states:

$$Included_i = \Lambda\left(\begin{array}{l} \alpha + \sum_j \sum_l \sum_k \left(\beta_{j,l,k} \cdot DisabilityType_i^j \cdot SeverityType_i^k \cdot GradeLevel_i^l\right) \\ +\varphi \cdot NonNaepAcc_i + \sum_s \eta_s \cdot State_i^s \end{array}\right),$$

where

$Included_i$ = 1 if student i was included on the NAEP assessment; 0 otherwise;

$\Lambda(z) = \frac{e^z}{1+e^z}$ is the logistic cumulative distribution function;

$DisabilityType_i^j$ = 1 if student i has disability type j; 0 otherwise;

$SeverityType_i^k$ = 1 if student i has disability severity level k; 0 otherwise;

$GradeLevel_i^l$ = 1 if student i is receiving instruction at grade level l; 0 otherwise;

$NonNaepAcc_i$ = 1 if student i receives an accommodation on state assessments not allowed on NAEP; 0 otherwise;

$\alpha, \beta_{j,l,k}, \varphi, \eta_s$ are coefficients to be estimated;

$State_i^s$ = 1 if student i lives in state s; 0 otherwise; and

i indexes students, j indexes types of disability, k indexes severity levels, l indexes grade level of instruction, and s indexes states.

This regression is similar to the nation-based regression but differs because it explicitly estimates differences between states by including state fixed effects or, in other words, indicator variables for each state. If this were a linear model, the state fixed effects could, themselves, be used as the starting point measure because they would be on the same scale as the dependent variable. Because this is a nonlinear model, additional calculations are necessary to translate the fixed effects to the same probability scale as predictions of the dependent variable. Using this second regression, we generate 51 predicted probabilities for each student as if the student were in each state or jurisdiction. The ultimate predicted probability for each student is the average of these 51 predicted probabilities (i.e., the average probability of inclusion across every state). These ultimate predicted probabilities will be the same for each student in the sample, from any state, with the same set of characteristics. This is the common yardstick used to compare states. The state-level predicted inclusion rate is the average of the student-level predicted probabilities in that state. This state-level predicted inclusion rate is interpreted as the *average inclusion rate of all states if all states had the same proportions of students with different types and severities of disabilities as the state in question*. Again, this is performed using initial year data to compare inclusion rates across states in the initial period.

Given the results of the regression equation above, the state-level predicted inclusion rate is as follows:

$$StateLevelPredicted_{\hat{s}} = \frac{\left(\sum_{s=1}^{NumStates} \frac{\sum_{i \in \hat{s}} Prob\left(inclusion \mid x_i, state = s\right) \cdot Weight_i}{N_{\hat{s}}} \right)}{NumStates},$$

where

$\hat{s}$ is the reference state;

$N_{\hat{s}}$ is the sum of weights of all students with disabilities in the reference state $\hat{s}$;

$NumStates$ is the number of states;

$Prob\left(inclusion \mid x_i, state = s\right)$ is the probability of inclusion for a student with a vector of control variables, x_i, living in state s;

$Weight_i$ = sampling weight for student *i*; and

i indexes students and s indexes states.

The measure for comparison across states is the difference between a state's actual initial-period inclusion rate and this predicted inclusion rate.

$$StateLevelActual_{\hat{s}} = \frac{1}{N_{\hat{s}}} \sum_{i=1}^{N_{\hat{s}}} Included_i \cdot Weight_i$$

$$DistAbovePredicted_{\hat{s}} = StateLevelActual_{\hat{s}} - StateLevelPredicted_{\hat{s}}$$

SUMMARY AND COMPARISON OF APPROACHES

The two approaches discussed above were developed out of conversations between NCES and AIR staff with the members of the NAEP Validity Studies panel and the Education Information Management Advisory Consortium (EIMAC). We present them with no preference for one over the other. The nation-based approach for measuring change has the advantage of relying on a single regression estimated using all states in the initial period. The large number of observations used in this regression allows us to estimate the relationship between inclusion and controls with a greater level of detail. Because it uses data from all states, we are able to create interaction terms between type of disability, severity level, and grade level of instruction variables for more detail in distinguishing student characteristics. There are not enough observations in a single state to accurately estimate all those interaction terms jointly and so only type of disability and severity level are crossed in the state-specific model.

Additionally, under the nation-based approach, a subset of the results used to determine the measure of change can be used to create the starting point measure. In contrast, the state-specific approach to measuring change requires 51 separate state-level regressions for the change measure plus an additional model for the measure of differences between states. Because the 51 regressions for the change measure are at the state level, we are able to cross type of student disability only with severity level, leaving grade level of instruction to be included as its own set of indicators. The advantage of the state-specific approach for measuring change, however, is that it eliminates any potential bias resulting from the subjective interpretation of the SD Questionnaire that is correlated to the state in which a student is tested.[12] Under the state-specific approach, a different relationship between inclusion on NAEP and student characteristics is estimated for each state, which allows change in each state to be measured by its own implicit standards as set in the initial period. Tables 3 and 4 summarize the nation-based and state-specific approaches to measuring change and methods for measuring the starting point.

Table 3. Summary and comparison of nation-based and state-specific measures of change

	Nation-based approach	State-specific approach
Methodology	Partitioning technique derived from Oaxaca-Blinder decomposition technique	
Result	Nation-based measure of change	State-specific measure of change
Population for fixing relationship between inclusion and controls	National NAEP SD sample (except ELLs) for initial period (2005)	For each state/jurisdiction: that state/jurisdiction's SD sample (except ELLs) for the initial period (2005)
Controls	5 disability-type indicators X 4 severity-level indicators X 4 grade level of instruction indicators, indicator of received an accommodation on state assessment that is not allowed on NAEP	5 disability-type indicators X 4 severity-level indicators, 4 grade level of instruction indicators
Benefit of approach	More interactions between the control variables	Separate relationship estimated for each state, thus circumventing potential bias due to differential interpretation of SD questionnaire across states

12 A further discussion of this point is provided in the section on caveats and cautions in interpretation.

Table 4. Summary and comparison of nation-based and state-specific measures of starting point

	Nation-based approach	State-specific approach
Result	Nation-based measure of starting point	State-specific measure of starting point
Population for fixing relationship between inclusion and controls	National NAEP SD sample (except ELLs) for initial period (2005)	National NAEP SD sample (except ELLs) for initial period (2005)
Include state fixed effects	No	Yes
Benefit of approach	Uses same regression and results as in the nation-based approach's measure of change	Including state fixed effects explicitly estimates differences between states

THE ROLE OF ACCOMMODATIONS AND STATE POLICIES

In developing these measures, we paid particular attention to the role that accommodations and state policies on inclusion on state assessments play in the inclusion of SDs in the NAEP assessment. Whether or not an SD can participate in the NAEP assessment is determined by the child's school and supported by information in the SD Background Questionnaire. Changes in NAEP inclusion rates are, therefore, likely related to the testing policies of assessment programs in a student's state because this local decision making regarding a student's participation in NAEP is likely to be heavily influenced by the rules for the participation of SDs on state assessments. Theoretically, states can include a given student without accommodation, accommodate the student (i.e., include the student with an accommodation), or not include the student.

The concern over the role of accommodations and state policies in our measures of change over time and differences among states has several facets. First, if state policies on inclusion are likely to influence how the SD Questionnaire respondent recommends a student be treated on NAEP, should those state policies be controlled for in our measure of change and/or our starting point measure? Potential information that could be used includes whether the student was excluded or included with or without accommodation and what type of accommodation he or she received on the state assessment. For our analysis, we include information on accommodations not allowed on NAEP that are provided for the student on state assessments in models that make comparisons among states. This includes the single regression model used in the nation-based approach and the regression model used for the measure of starting point, but not the measure of change over time, in the state-specific approach.

Including an indicator for *receiving an accommodation on the state assessment not allowed on NAEP* in the regression means that students who receive such an accommodation will have an adjusted probability of inclusion. In other words, with other characteristics held constant, students receiving such an accommodation are compared in inclusion treatment with other students receiving such an accommodation and not with others. This is similar to the way that students with a *specific learning disability* are compared with other students with a *specific learning disability* and not with students with *mental retardation*.

It was decided that it is unfair to states that are more accommodating than NAEP to be compared similarly with other less accommodating states for determining the predicted inclusion rate for each state. Including in the regression model an indicator for *receiving an accommodation on the state assessment not allowed on NAEP* addresses this. Further, it was also decided not to include an indicator for whether the student was excluded from a state assessment, a factor that we had considered using in the models. Such a measure would likewise set students excluded on state exams separate from other students. The purpose of

this study is to gauge improvement in inclusion. Using an indicator for students given an accommodation on the state assessment that is not allowed on NAEP, in essence, would reward a state for extra efforts at accommodation by setting a separate standard of inclusion. Using an indicator for students excluded on state assessments would set a separate standard for states that are less accommodating and is hence omitted.

A control variable for students receiving an accommodation on the state assessment that is not allowed on NAEP is appropriate for any model that is estimated using more than one state's data. This control variable is included in the one regression model estimated for the nation-based approach as well as in the second regression model estimated in the state-specific approach that is used for calculating the starting point measure. The measure of change over time in the state-specific approach compares states with themselves over time, so no information about the treatment of students on state assessments is included among the control variables.

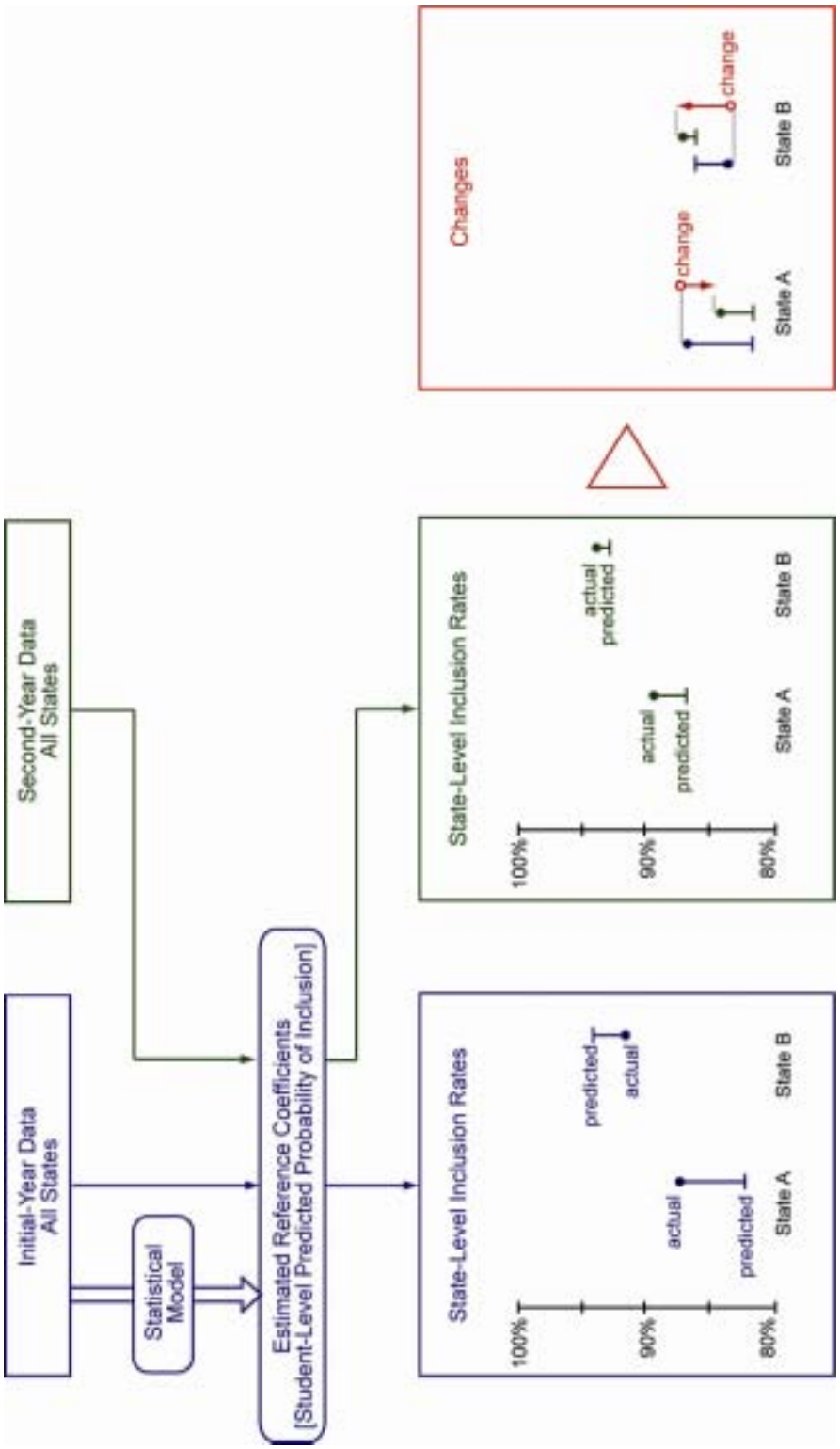
The decision to omit the control for *accommodation on the state assessment not allowed on NAEP* from the state-specific model means the following: changes in accommodations policy on state assessments that lead to changes in inclusion on NAEP *are* counted as part of that change measure. Because they are not controlled for, any effect they have is captured in the change measure. Therefore, if a state begins to allow an accommodation on its state assessments that is not allowed on NAEP and this leads to lower inclusion rates on NAEP for some students, this will show up as reduced measured change in NAEP inclusion.

ILLUSTRATIONS OF THE APPROACHES

Nation-Based Approach

To better understand how the approaches for measuring change work and how they are different, we present two graphical displays and hypothetical examples. As illustrated in figure 2, the nation-based approach uses initial-year data to estimate the relationship between student characteristics and the probability of inclusion. This estimated model provides the reference coefficients used for all states which, in turn, provide a predicted probability of inclusion for each student. These predicted probabilities of inclusion are then aggregated to provide a predicted inclusion rate for a given state in a given year. Change, as illustrated in the figure, is measured as change in the distance between the state's actual and predicted inclusion rates from the first period to the second.

Figure 2. Illustration of nation-based approach for measuring change



Consider a hypothetical situation in which there are only two types of students with disabilities in the grade 4 mathematics NAEP assessment:

Type 1:

- The student's disability is classified as *having a specific learning disability.*
- The disability is classified as *moderate.*
- The student is receiving a level of instruction in mathematics that is the *same* as the grade the student is in (grade 4).
- The student is not receiving an accommodation on the state assessment that is not allowed on NAEP.

Type 2:

- The student's disability is classified as *having emotional disturbance.*
- The disability is classified as *severe.*
- The student is receiving a level of instruction in mathematics that is *two grades below* the grade the student is in (grade 4).
- The student is receiving an accommodation on the state assessment that is not allowed on NAEP.

In this hypothetical situation, there are only two states, State A and State B. The distribution of SDs between the two types described above are given in the first two rows of table 5. The distribution of SDs is different across states and across time periods. State A has a higher proportion of students of type 2 in both years, but the proportion of type 2 students declines for each state in the second period.

Table 5. Example of nation-based approach for measuring change

		Initial period		Second period		
		State A	State B	State A	State B	Change
Distribution of SDs (percentage in type)	Type 1	65.00	90.00	75.00	97.00	
	Type 2	35.00	10.00	25.00	3.00	
Student-type predicted probabilities (set by one regression using all states' initial year data)	Type 1	.95	.95	.95	.95	
	Type 2	.60	.60	.60	.60	
State-level predicted inclusion rate		82.75	91.50	86.25	93.95	
State-level actual inclusion rate		89.00	91.00	92.00	95.00	
Distance above predicted	State A	6.25		5.75		–0.50
-	State B		–0.50		1.05	1.55

In the nation-based approach, a logistic regression using all observations from all states estimates the relationship between SD characteristics and the probability of inclusion. Hypothetical estimated coefficients for this example are as follows:

$\hat{\alpha}$	= 2.00	Intercept coefficient
$\hat{\beta}_{1,2,1}$	= 0.94	Coefficient for students with specific learning disability, moderate, same grade level of instruction
$\hat{\beta}_{4,3,3}$	= -0.40	Coefficient for students with emotional disturbance, severe, two grades behind in instruction
$\hat{\beta}_{nna}$	= -1.20	Coefficient for students receiving an accommodation on the state assessment that is not allowed on NAEP

The resulting predicted probability for each combination of student characteristics is the student-level predicted probability: the probability that a student with that given set of characteristics is included on NAEP. They are calculated by first obtaining the linear combination of the coefficients:

Linear combination of coefficients for students type 1:

$\hat{\alpha} + \hat{\beta}_{1,2,1}$ = 2.00 + 0.94 = 2.94

Linear combination of coefficients for students type 2:

$\hat{\alpha} + \hat{\beta}_{4,3,3} + \hat{\beta}_{nna}$ = 2.00 – 0.40 – 1.20 = 0.40

Second, we transform that linear combination of coefficients to the probability scale by means of the logistic function, $\Lambda(z) = \frac{e^z}{1+e^z}$:

Predicted probability for students type 1: $\frac{e^{2.94}}{1+e^{2.94}}$ = 0.95

Predicted probability for students type 2: $\frac{e^{0.40}}{1+e^{0.40}}$ = 0.60

The student-level predicted probabilities for the two types in this hypothetical example are provided in rows 3 and 4 in table 5. These predicted probabilities are the same across states and across time for all students with the same characteristics.

The state-level predicted inclusion rates are an aggregation of student-level predicted probabilities according to the distribution of the types of SDs in the state. Because of the different distributions of students, the state-level predicted inclusion rates vary across states and across time. The calculation of state-level predicted inclusion rates is straightforward in this simplified example: for State A in the initial period, 65 percent of the students are type 1 and are expected to be included at a rate of 95 percent, whereas the remaining 35 percent of students are type 2 and are expected to be included at a rate of 60 percent. The state-level predicted inclusion rate can thus be seen as a weighted average of those student-type predicted probabilities where the weights are the proportions of students in each type. For State A in the initial time period, (65% × .95) + (35% × .60) = 82.75 percent. Across states in the initial period, because State B has a greater proportion of students who are easier to include, type 1, than State A, State B's state-level predicted inclusion rate is higher than that

of State A. Because in State A the proportion of students of type 1 is higher in the second period than in the initial period, State A's state-level predicted inclusion rate is higher in the second period than in the first period.

Change is measured by comparing the *distance above the predicted inclusion rate* in each period. Actual (i.e., unadjusted) inclusion rates for our example are provided in table 5. The last two rows of table 5 contain the distance above the predicted inclusion rate measures for State A and State B. State A was 6.25 percentage points above its predicted inclusion rate in the initial period and 5.75 percentage points above its predicted inclusion rate in the second period, for a change of –0.50, as reported in the last column. This means that State A was relatively *less* inclusive in the second period by our measure of 0.5 percentage point. State B, however, increased its inclusion relative to its predicted inclusion rate by 1.55 percentage points.

Once we have the change measures, it is important to put them in context. That context is a comparison of the relative inclusiveness of states in the initial period. In the nation-based approach, this is comparing both states' *distance above the benchmark* in the initial period. In the initial period, State A, at 6.25 percentage points above its benchmark, is relatively more inclusive than State B, which was 0.50 percentage point *below* its benchmark. Given this context, it is not surprising to see State B improve and State A not improve.

State-Specific Approach

Building on the example for the nation-based approach, we look at an example for the state-specific approach in which the regression model used to fix the relationship between student characteristics and the probability of inclusion is estimated separately for each state using the initial period's data, as illustrated in figure 3. Estimation of the statistical model is done separately for each state resulting in a separate set of reference coefficients for each state. Those coefficients are then used with their respective state's second period data to provide a predicted probability of inclusion for each student. The predicted probabilities are aggregated within the state to obtain a predicted inclusion rate for that state for the second period. Change for a state, under the state-specific approach, is the difference between the states actual inclusion rate and that predicted by the model.

Hypothetical results from these regressions are as follows:

State A

$\hat{\alpha}^{A}$ = 4.70 Intercept coefficient

$\hat{\beta}^{A}_{1,2}$ = -0.10 Coefficient for students with specific learning disability, moderate

$\hat{\beta}^{A}_{4,3}$ = -1.30 Coefficient for students with emotional disturbance, severe

$\hat{\gamma}^{A}_{3}$ = -2.78 Coefficient for students two grades behind in instruction

State B

$\hat{\alpha}^{B}$ = 2.75 Intercept coefficient

$\hat{\beta}^{B}_{1,2}$ = -0.31 Coefficient for students with specific learning disability, moderate

$\hat{\beta}^{B}_{4,3}$ = -0.75 Coefficient for students with emotional disturbance, severe

$\hat{\gamma}^{B}_{3}$ = -2.28 Coefficient for students two grades behind in instruction

For a given set of student characteristics, therefore, each state will have its own student-level predicted probability set by the initial period, as given for students of type 1 and type 2 in the first two rows of table 6. These are also calculated by first obtaining the linear combination of the coefficients and then transforming them to the probability scale using the logistic function:

State A

Linear combination of coefficients for students type 1[13]:

$\hat{\alpha}^A + \hat{\beta}^A_{1,2}$ = 4.70 – 0.10 = 4.60

Linear combination of coefficients for students type 2:

$\hat{\alpha}^A + \hat{\beta}^A_{4,3} + \hat{\gamma}^A_3$ = 4.70 – 1.30 – 2.78 = 0.62

State B

Linear combination of coefficients for students type 1:

$\hat{\alpha}^B + \hat{\beta}^B_{1,2}$ = 2.75 – 0.31 = 2.44

Linear combination of coefficients for students type 2:

$\hat{\alpha}^B + \hat{\beta}^B_{4,3} + \hat{\gamma}^B_3$ = 2.75 – 0.75 – 2.28 = –0.28

State A

Predicted probability for students type 1: $\frac{e^{4.60}}{1+e^{4.60}}$ = 0.99

Predicted probability for students type 2: $\frac{e^{0.62}}{1+e^{0.62}}$ = 0.65

State B

Predicted probability for students type 1: $\frac{e^{2.44}}{1+e^{2.44}}$ = 0.92

Predicted probability for students type 2: $\frac{e^{-0.28}}{1+e^{-0.28}}$ = 0.43

13 There is no coefficient for the grade-level of instruction for students of type A because the category for those receiving a grade-level of instruction at or above the grade level is the omitted, or reference, category.

Figure 3. Illustration of state-specific approach for measuring change

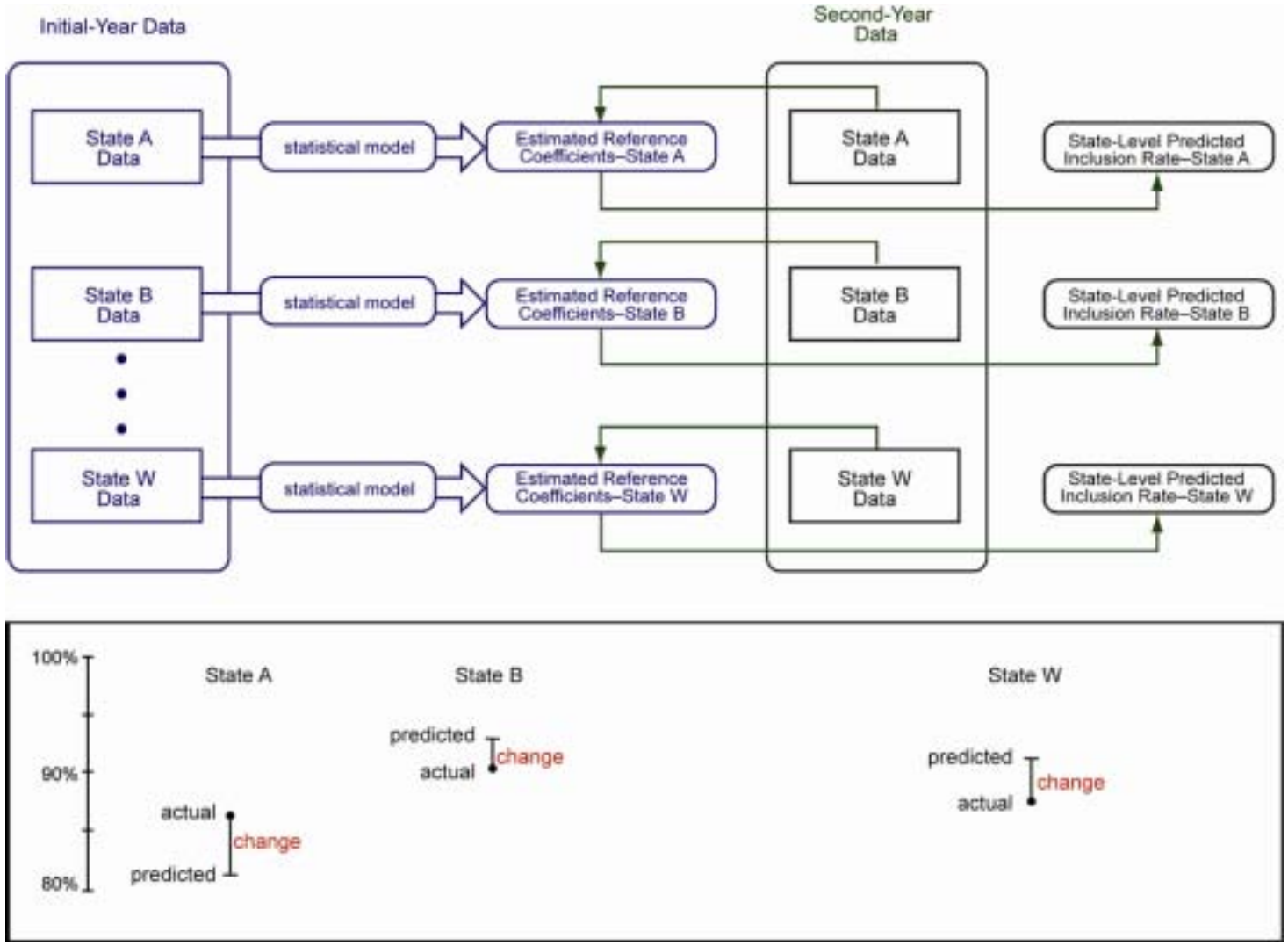


Table 6. Example of state-specific approach for measuring change

		State A	State B
Student-type predicted probabilities (set by separate regressions for each state using initial year data)	Type 1	.99	.92
	Type 2	.65	.43
Distribution of SDs (percentage in type)	Type 1	75.00	97.00
Second-year data	Type 2	25.00	3.00
State-level predicted inclusion rate for second year		90.50	90.53
State-level actual inclusion rates for second year		90.00	95.00
Change		–0.50	4.47

The third and fourth rows of table 6 have the distribution of students for State A and State B in the second period. The state-level predicted inclusion rates are a weighted average of the student-type benchmarks using the proportion of students in each type as a weight. In our example, State A's state-level benchmark is (99% × .75) + (65% × .25) = 90.5 percent. This state-level predicted inclusion rate is the inclusion rate we would expect that state to have because of the rates by which it included different types of students in the first period and on the proportions of students in each type in the second period.

Comparing the actual (unadjusted) second-period inclusion rates with the state-level predicted inclusion rate gives the measure of change. State A is predicted to have a 90.5 percent inclusion rate on the basis of its student-level predicted probabilities set in the initial period. State A's actual inclusion rate in the second period is 90 percent, meaning that it was less inclusive in the second period than in the initial period. For State B, the actual inclusion rate in the second period is nearly 5 percentage points higher than its predicted inclusion rate, indicating that it is more inclusive in the second period.

Again, the change measures need to be put into context. In the state-based approach, this requires a separate regression. The regression is distinct from the regression used in the nation-based approach but is similar enough that in this simple exercise they produce the same results. Hence, we simply refer back to table 5 where State A had a higher inclusion rate adjusted for differences in SD population in the initial period. As in the nation-based approach, we again conclude that although State B increased its relative inclusion of students, it also started out relatively less inclusive; so, it is not surprising that it had a larger increase in the change measure.

STARTING POINT VS. CHANGE

Under both approaches, we can compare states with one another in the initial period using the *starting point* measure. The starting point measure provides a context for the measure of change over time, which is the focus of this study. Because it is not easy to evaluate these two measures at the same time, we simplified and combined them by categorizing the two-dimensional display space: starting point *versus* change. For the starting point, the measure is given a quartile rank: all the states' starting point measures (distance above the benchmark measures for the initial period) are ordered and partitioned into quartiles. Each state is subsequently assigned a number from 1 to 4, according to which quartile it is in, with 4 being the highest quartile (the top 25 percent of starting point measures) and 1 the lowest (the bottom 25 percent of starting point measures).

Change is of most interest for this study; we summarize the change measure by whether the change is statistically different from zero and give its direction if it is statistically significant.[14] For change, we assign the state a score of 1 if the change measure is both positive and statistically significant (the state is more inclusive of SDs in 2007 than in 2005), 0 if the change measure is not statistically different from zero, and –1 if the change measure is both negative and statistically significant (the state is less inclusive of SDs in 2007 than in 2005). We then assign each state a *composite index score*, which uses these two scores as coordinates. This divides the *starting point vs. change* space into 12 bins, shown in figure 4. For each subject and grade assessment in NAEP, every state falls into one of these bins.

Figure 4. Composite index score by quartile of starting point score and statistical significance of change score

Starting point quartile				
4 more inclusive	(4, –1)	(4, 0)	(4, 1)	
3	(3, –1)	(3, 0)	(3, 1)	
2	(2, –1)	(2, 0)	(2, 1)	
1 less inclusive	(1, –1)	(1, 0)	(1, 1)	
	–1 negative and significant	**0 no significant change**	**1 positive and significant**	**Change**

This partitioning of the space simplifies the understanding of results by focusing on statistically significant change in inclusion rates while providing a context for understanding that change. A priori, we expect to find states making positive and significant change to be located lower on the scale of inclusiveness. A more nuanced evaluation can be performed by looking directly at the values of the measures, but this captures the relative essence of those results to facilitate their understanding. In the results tables, we provide the values of the measures as well as this simplified composite index score.

14 All tests were conducted at the 95 percent confidence level using simple *t*-tests. Estimation of standard errors is described in appendix A.

DATA

For our analysis, we use 2003, 2005, and 2007 NAEP data for the mathematics and reading assessments. The NAEP items that we use are derived from the SD Background Questionnaire.[15] This questionnaire is filled out by the special education teacher or staff member who is most familiar with the student for each student who is both selected for NAEP participation and designated either as a student with disabilities or as an English language learner. For all SDs sampled for participation on NAEP, the questionnaire gathers information about the type of disability, the extent of the student's disability, and the type of instruction the student receives. Whether or not an SD can participate in the NAEP assessment is determined by the child's school, and the decision is supported by information in the SD Background Questionnaire.

The sample analyzed in this report is limited to SDs who are not also English language learners.[16] In addition to whether a student is included on the NAEP assessment, we use information on the type of disability the student has, the severity level of his or her disability, and indicators for the grade level of instruction compared with that of other students without a disability. For a portion of our analysis, we also use information on the type of accommodations, if any, the student received on state assessments.

Student disability type is included in our analysis as an explanatory variable for inclusion because some disabilities are easier to accommodate on NAEP assessments and some disabilities hinder learning more than others. NAEP allows disabilities to be classified according to 12 categories. In the 2003 NAEP, the teacher or staff member who filled out the SD Background Questionnaire was asked to pick one category that *best describes the student's primary disabilit*y. In 2005 and 2007, respondents were asked to indicate which of the 12 *describes the student's identified disability(ies)* and to check all that applied. Because the focus of analysis is the application to change from 2005 to 2007, the types of student disabilities are treated as not mutually exclusive in all years.

Although disabilities in NAEP are classified into 12 categories, many categories have very few students. In our model, we attempt to estimate separate effects for each type of disability, severity level, and grade level of instruction combination. For statistical power, we need an adequate amount of observations (students in our analysis) in each category. However, many of the 12 disability categories contained small numbers, so we explored options for collapsing them. We first consulted with an expert to help us combine categories thematically, grouping like disabilities together. This, however, still left us with some small categories and, since even 'like' categories were still heterogeneous, we felt this approach was problematic. Finally, our solution was to retain the largest 4 of the 12 categories and collapse the others, along with observations with missing disability type information, into a fifth category. In this approach, the largest categories are left homogeneous and only one heterogeneous category captures the remaining ones. Here, the effects for the largest categories will not be influenced by small categories having been folded into them. However, since so many heterogeneous categories are combined into the "other" category, its estimated effect will be an average of those combined categories and, therefore, one cannot draw conclusions about students in disability

15 The 2005 and 2007 versions of these questionnaires are included in appendix D. Additional information about the Background Questionnaires is available at http://nces.ed.gov/nationsreportcard/bgquest.asp.

16 As mentioned earlier, in the 2005 and 2007 mathematics and reading NAEP assessments, students with disabilities who were also English language learners made up 14 to 15 percent of all grade 4 students with disabilities and 16 to 19 percent of all grade 8 students with disabilities. The matter of how the exclusion of SDs who are also ELLs from the sample could affect the analyses in this report is, therefore, of importance. We expect SDs who are also ELLs to be included on NAEP under a very different process; as such, we expect that the model and, possibly, results will change by including them. This is the subject of the next set of reports which will be addressing the inclusion of English language learners and the joint SD and ELL populations.

categories that are folded into this broad category.[17] The categories used for analysis are listed in table 7.

Table 7. Categories of variables in regression equation

Student disability types (not mutually exclusive)	
1	Specific learning
2	Speech impairment
3	Mental retardation
4	Emotional disturbance
5	Other disability; Not reported [1]
Disability severity level	
1	Severe
2	Moderate
3	Mild
4	Not reported
Grade level of instruction	
1	Instruction at or above grade level
2	One year below grade level
3	Two or more years below grade level
4	Not reported; Not receiving instruction in this subject
Received accommodation on state assessment not allowed on NAEP	
0	Did not receive such an accommodation
1	Did receive such an accommodation

[1] Disabilities included in this category are: hearing impairment/deafness, visual impairment/blindness, orthopedic impairment, traumatic brain injury, autism, developmental delay (age 9 or younger), other health impairment, and any other nonspecified disabilities.

In our analysis, we also include a measure of the severity of a student's disabilities. The measure of severity, as asked in the SD Background Questionnaire, is an overall assessment of the degree of a student's disabilities and is not subject specific. When we hold a student's type of disability constant, the more severe the disability, the more likely it is that the student will not be included. The categories of the severity level are given in table 7. The major criticism of the severity measure is that it is not subject specific; the impact of the disability might be more severe for one subject than another. A second criticism of the severity measure is that it may be subjective to the SD Background Questionnaire respondent.

A subject-specific measure of severity, which also provides a more objective assessment of how the school treats a student, is the indicator for the grade level of instruction the student receives in the subject tested: *Is the content the same as that given to students in the same grade? Is it one grade level of instruction below, or is it two or more grades below?* A small number of students were reported as *not receiving* instruction in the subject being tested, mathematics or reading. Students not receiving instruction or with this information missing were collapsed into a fourth category because there were too few cases to analyze them

17 The treatment of missing or "not reported" data is a common problem in empirical research. The inclusion of a separate categorical variable for observations with "not reported"/missing as well as practicing listwise deletion of incomplete observations have both been shown to induce bias in estimated coefficients (Vach and Blettner 1991; Jones 1996). Imputation procedures that reduce bias exist. However, our focus in this report is not on the estimated coefficients or their interpretation but in using the coefficients as benchmarks for controlling for shifts in demographics of states' SD populations over time. We included a separate indicator variable for missing categorical data in order to use all observations in the calculation of state-level inclusion rates and avoid complications from employing imputation procedures for completing observations.

separately. The response levels to this question are given in table 7.[18] Although the use of this variable addresses criticism of the severity measure, it is not without its own criticism. The major criticism is that under the *Individuals with Disabilities Education Act* (IDEA) and the *No Child Left Behind Act*, students with disabilities are to be given instruction and goals based on grade-level standards.[19] An answer that the student is receiving instruction at any level other than *at or above grade level* could be interpreted as indicating that the school is breaking the law. This calls into question the validity of responses to this item on the SD Background Questionnaire. Nevertheless, we use this variable, understanding that it is possibly measured with error. The concern over this variable suggests that the items in the NAEP SD Questionnaire be brought more into alignment with the language of IDEA.

The SD Background Questionnaire collects details about accommodations the student received on the state assessments. For our analysis, we use this information to construct a variable that indicates whether the student received an accommodation on the state assessment that is not allowed on NAEP.[20] For 2003 and 2005 data, we match the list of accommodations allowed on NAEP with the list of accommodations reported on the questionnaire for state assessments to identify which students received an accommodation on the state assessment that is not allowed on NAEP. In 2007, an additional item was added to the Background Questionnaire that explicitly asked whether the student received any accommodation on the state assessment that is not allowed on NAEP.[21] For 2007 data, we use this item to construct our variable.

For mathematics, the accommodations not allowed on NAEP include using a tape recorder to submit answers, using a calculator, and testing over several days. For reading, the accommodations not allowed on NAEP include those for mathematics plus having reading passages and test questions read aloud and having test questions asked in sign language. A further discussion of the role of this information in our analysis was provided above.

Standard errors for all results are calculated using a modification of NAEP's recommended procedure for calculating standard errors with the provided jackknife weights. NAEP's recommended procedure needed to be modified because that procedure is meant to provide standard errors for statistics estimated using data from a single NAEP administration. In both approaches described above, regression coefficients estimated using one NAEP administration are applied to a second NAEP administration. Hence, there are two potential sources of error: one from the coefficients and one from the data to which the coefficients are applied. The recommended NAEP procedure for calculating standard errors was modified to take both of these sources of error into account. The procedure we use is described further in appendix A.

SUMMARY STATISTICS

To demonstrate the variation in factors used in analysis, tables 8a, 8b, and 8c provide, for each state, the (weighted) percentage of sampled SDs in each type of disability, the percentage included on the NAEP assessment, the percentages in each severity level, the percentages in each grade level of instruction, and the percentage receiving an accommodation on the state assessment that is not allowed on NAEP. Additionally, the number of SDs sampled in each state is provided in the first column of 8a. Using Alabama in table 8a as an example, we see that for the 2007 NAEP grade 4 mathematics assessment, approximately 390 of the students sampled from that state were classified as an SD who is not

18 In previous versions of our analysis, we used curriculum level, whether the student received the same curriculum as nondisabled students, because it asked explicitly whether the student was given special treatment because of a disability. However, in 2007, this item was discontinued, but the item about grade level of instruction continued.

19 Individuals with Disabilities Education Act Legislation, retrieved 6/24/2008 from http://www.ed.gov/policy/speced/leg/edpicks.jhtml?src=ln.

20 For summary information on the accommodations practices in each state see the profiles of state assessment standards at http://nces.ed.gov/nationsreportcard/researchcenter/statemapping.asp

21 See questionnaires in appendix D.

an ELL. For the non-ELL SD population represented by those 390 students, 88.3 percent participated on NAEP, 52.8 percent had *a specific learning disability,* 23.9 percent had *a speech impairment*, and so on. From table 8b, 12.2 percent had their disabilities classified as *severe* and 45.3 percent had their disabilities classified as *mild*. Finally, table 8c reports in the second column that 45.3 percent of the non-ELL SDs in Alabama received instruction in mathematics at or above grade level. The last column reports that 6.1 percent of the same group received an accommodation on the state assessment that was not allowed on NAEP.

Table 8a. Sample size of public school students with disabilities in NAEP grade 4 mathematics assessment, percentage included on the assessment, and percentage with each disability type: By state, 2007

State	Sample size[1]	Included students	Learning disability	Speech impairment	Mental retardation	Emotional disturbance	Other disabilities
Alabama	390	88.3	52.8	23.9	7.9	1.2	19.3
Alaska	420	91.3	49.4	26.8	5.0	3.5	27.2
Arizona	340	83.4	51.1	34.2	4.4	4.0	27.1
Arkansas	360	79.8	38.8	29.1	11.7	1.4	31.6
California	620	83.9	42.5	33.0	3.6	3.4	29.2
Colorado	360	88.2	51.0	26.0	5.5	9.8	30.5
Connecticut	370	89.7	36.9	20.9	4.1	2.8	42.7
Delaware	550	73.1	60.0	14.9	2.9	3.1	29.6
District of Columbia	260	66.3	63.3	15.0	6.0	6.0	19.5
Florida	790	88.3	56.4	23.8	5.0	5.3	30.2
Georgia	540	83.5	31.6	29.2	6.6	13.3	33.0
Hawaii	340	90.5	59.4	7.2	6.3	4.1	27.3
Idaho	350	86.3	43.9	27.3	7.2	5.9	30.8
Illinois	630	77.6	46.2	29.9	5.3	5.9	29.6
Indiana	520	85.7	39.6	41.0	12.3	5.3	18.8
Iowa	390	90.0	62.1	13.8	2.9	6.9	34.4
Kansas	350	78.9	49.3	27.7	8.2	6.0	28.3
Kentucky	500	84.2	14.7	37.2	11.7	3.2	42.1
Louisiana	530	87.8	40.6	23.7	5.9	2.6	34.5
Maine	530	83.7	39.5	21.5	4.1	4.6	39.5
Maryland	430	72.7	42.6	30.3	3.4	4.7	30.9
Massachusetts	750	74.3	50.3	23.0	1.6	5.6	40.1
Michigan	450	76.1	45.3	33.9	8.7	7.2	20.2
Minnesota	470	85.9	33.7	35.5	8.4	9.9	33.3
Mississippi	350	92.3	43.8	32.9	3.7	2.4	30.2
Missouri	480	76.6	33.6	41.7	9.3	3.6	26.4
Montana	370	81.7	54.6	32.8	5.9	5.4	28.0
Nebraska	470	85.7	42.2	48.0	9.7	2.1	24.5
Nevada	420	84.5	37.3	24.1	2.9	3.8	35.3
New Hampshire	620	88.7	49.6	23.0	2.7	5.3	40.6
New Jersey	460	88.0	49.8	12.3	2.0	4.0	40.0
New Mexico	320	83.2	53.2	31.3	5.4	6.6	27.1
New York	580	91.2	42.1	24.4	2.2	2.7	38.3
North Carolina	760	89.7	39.5	18.9	6.9	3.3	37.0
North Dakota	420	76.3	45.3	36.0	7.8	6.4	24.5
Ohio	640	71.5	50.5	23.5	9.3	4.4	29.0
Oklahoma	470	67.8	50.8	23.2	8.2	5.5	25.1
Oregon	500	85.8	48.1	33.3	4.5	3.7	28.4
Pennsylvania	560	86.1	54.1	30.4	7.2	4.7	24.8
Rhode Island	570	91.0	48.9	29.8	3.8	5.2	34.1
South Carolina	470	88.1	53.4	37.7	9.0	1.5	16.4
South Dakota	460	92.2	43.9	34.0	6.2	3.8	25.3
Tennessee	460	59.4	40.5	33.4	8.6	2.3	33.8
Texas	960	62.8	49.2	29.8	2.5	7.6	38.1
Utah	390	84.4	50.6	29.9	3.1	3.2	23.2
Vermont	440	86.4	46.7	16.3	4.4	12.5	39.8
Virginia	530	74.1	39.9	30.1	5.2	4.3	33.0
Washington	510	85.7	46.0	25.8	5.9	4.5	30.4
West Virginia	540	91.6	31.9	40.3	13.2	1.3	23.9
Wisconsin	450	85.5	43.9	36.1	5.4	11.6	23.1
Wyoming	390	89.6	48.0	36.2	3.6	5.2	29.7

[1] Rounded to the nearest 10 for confidentiality.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2007 Mathematics Assessment.

Table 8b. Percentages of public school students with disabilities in NAEP grade 4 mathematics assessment with each severity level of disabilities: By state, 2007

State	Severe disability	Moderate disability	Mild disability	Severity not reported
Alabama	12.2	35.4	45.3	7.2
Alaska	9.7	35.0	42.5	12.7
Arizona	4.4	24.8	48.2	22.6
Arkansas	10.5	38.3	43.8	7.5
California	9.3	28.3	49.3	13.1
Colorado	10.5	42.8	36.7	10.1
Connecticut	8.2	38.0	34.7	19.2
Delaware	7.7	37.4	48.7	6.2
District of Columbia	9.1	49.9	31.5	9.5
Florida	6.9	39.1	45.5	8.5
Georgia	3.6	22.4	59.2	14.8
Hawaii	7.1	34.5	51.1	7.3
Idaho	7.8	40.2	44.2	7.8
Illinois	3.7	32.2	50.0	14.1
Indiana	3.3	14.6	72.5	9.7
Iowa	4.1	25.9	63.5	6.5
Kansas	12.7	39.2	42.0	6.0
Kentucky	7.0	30.5	54.4	8.2
Louisiana	2.5	12.3	64.7	20.5
Maine	7.6	41.2	41.4	9.7
Maryland	7.0	38.8	40.6	13.6
Massachusetts	5.9	57.6	28.0	8.4
Michigan	10.9	38.1	46.3	4.7
Minnesota	12.2	31.9	51.2	4.7
Mississippi	3.3	23.9	53.3	19.4
Missouri	9.1	39.0	49.4	2.5
Montana	13.2	41.6	37.2	8.0
Nebraska	2.5	18.4	74.5	4.6
Nevada	7.0	24.2	42.6	26.2
New Hampshire	11.1	51.5	28.8	8.5
New Jersey	2.9	45.9	42.2	8.9
New Mexico	14.7	41.0	33.9	10.4
New York	8.0	41.7	37.7	12.7
North Carolina	6.5	36.9	49.2	7.5
North Dakota	9.1	39.1	45.8	6.0
Ohio	9.4	34.7	46.5	9.4
Oklahoma	5.7	28.3	61.1	5.0
Oregon	7.2	43.0	43.8	6.0
Pennsylvania	5.1	34.7	52.2	8.0
Rhode Island	2.3	36.5	49.9	11.3
South Carolina	5.5	27.4	59.6	7.5
South Dakota	4.1	19.7	65.6	10.6
Tennessee	10.5	34.8	45.4	9.3
Texas	10.0	41.6	40.4	7.9
Utah	9.3	35.5	47.6	7.6
Vermont	15.0	48.5	25.9	10.6
Virginia	9.2	35.5	48.7	6.6
Washington	5.4	36.0	48.9	9.7
West Virginia	2.6	18.0	70.2	9.2
Wisconsin	7.5	40.8	47.1	4.6
Wyoming	11.4	41.6	40.3	6.8

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2007 Mathematics Assessment.

Table 8c. Percentages of public school students with disabilities in NAEP grade 4 mathematics assessment at each grade level of instruction, and percentage who received a non-NAEP accommodation: By state, 2007

State	Same or above grade	One year below	Two years or more below	Not reported	Non-NAEP accommodation
Alabama	45.3	21.2	25.8	7.7	6.1
Alaska	36.1	22.6	25.5	15.8	10.0
Arizona	38.6	16.1	25.5	19.8	11.2
Arkansas	41.2	13.3	35.0	10.6	16.4
California	51.4	13.2	21.0	14.4	10.8
Colorado	37.3	24.8	28.1	9.7	7.6
Connecticut	43.1	18.0	20.8	18.1	2.0
Delaware	48.0	25.6	19.5	6.9	47.5
District of Columbia	18.4	22.7	44.3	14.6	28.2
Florida	52.5	22.0	16.0	9.5	5.2
Georgia	51.5	20.9	17.9	9.6	19.3
Hawaii	34.1	23.1	34.9	7.8	8.0
Idaho	45.9	18.4	25.8	9.9	10.6
Illinois	46.2	19.4	19.4	15.0	13.6
Indiana	62.8	15.3	15.3	6.6	18.5
Iowa	44.7	26.9	19.7	8.7	16.5
Kansas	44.5	26.2	20.6	8.7	12.0
Kentucky	57.8	15.4	16.1	10.8	15.6
Louisiana	55.9	14.8	20.5	8.8	30.5
Maine	43.6	22.4	21.0	13.0	16.1
Maryland	49.1	20.2	19.4	11.3	23.0
Massachusetts	52.7	19.9	15.7	11.8	31.2
Michigan	42.2	21.9	29.4	6.4	11.8
Minnesota	45.2	20.1	26.2	8.5	2.4
Mississippi	61.5	10.0	7.8	20.7	5.5
Missouri	53.5	16.6	24.0	5.9	22.5
Montana	37.6	20.0	28.6	13.7	19.4
Nebraska	59.5	16.4	19.8	4.2	17.3
Nevada	35.9	17.5	20.4	26.2	8.7
New Hampshire	46.4	24.9	18.5	10.2	7.2
New Jersey	46.9	27.0	16.1	10.0	21.5
New Mexico	37.1	24.2	26.5	12.1	5.5
New York	48.9	21.3	17.8	12.1	9.5
North Carolina	54.0	17.8	19.3	8.9	4.2
North Dakota	55.2	15.0	18.9	10.8	17.7
Ohio	44.0	18.0	28.3	9.7	30.5
Oklahoma	40.4	22.5	28.5	8.7	20.6
Oregon	39.3	25.0	25.0	10.8	20.9
Pennsylvania	45.1	21.0	23.4	10.5	18.8
Rhode Island	48.4	22.3	18.5	10.8	8.5
South Carolina	59.9	12.2	18.7	9.2	8.4
South Dakota	54.2	18.4	15.2	12.3	11.0
Tennessee	36.1	20.6	30.1	13.2	42.3
Texas	52.7	18.2	20.9	8.1	7.3
Utah	39.6	18.6	27.4	14.5	13.1
Vermont	35.1	26.4	27.2	11.3	8.8
Virginia	62.1	15.8	13.2	8.9	29.1
Washington	37.5	21.1	30.7	10.7	9.9
West Virginia	63.9	10.0	16.4	9.7	6.0
Wisconsin	47.8	20.1	21.5	10.6	15.0
Wyoming	41.1	24.3	24.5	10.1	11.8

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2007 Mathematics Assessment.

CAVEATS AND CAUTIONS IN INTERPRETATION

SUBJECTIVITY AND MEASUREMENT ERROR

Some degree of subjectivity exists in the variables providing information on a student's disability characteristics. For example, the SD Background Questionnaire respondents who classify the students may have different interpretations of the disability classifications or of how to code the severity level of a student's disability. Reschly (1996) analyzes the subjective nature of these widely used systems of classifying SDs. If the subjective interpretation of a control variable is random across all observations, it is akin to measurement error. The statistical consequence of measurement error in a control variable is that the coefficient estimated for that variable in a regression model will tend toward zero. In the extreme case, if all our control variables were pure error, we would not be able to detect any differences among states in terms of those variables. In this extreme case, the measure of change over time would simply be the actual observed change over time because none of that change would be attributed to changes in control variables. Similarly, the starting point measure, which measures differences between states in the initial period, would simply be the difference between a state's actual inclusion rate and the average overall inclusion rate because none of the variation would be explained by control variables.

In our analysis, we cannot know how much our variables are measured with error. To the extent that a control variable is measured with error, its ability to explain differences in inclusion rates is reduced. Because the measure of change captures the portion of change that is not explained by the control variables, as the ability of the control variables to explain differences in inclusion rates is reduced, the magnitude of the measure of change will rise. For example, suppose that State A has an inclusion rate of 85 percent in 2005 and an inclusion rate of 92 percent in 2007. The actual change in inclusion rate for State A is 7 percentage points. If our control variables were perfect, they might, say, explain 4 of those 7 percentage points and the change measure would be 3 percentage points. If however, the control variables are measured with error, they will explain less of the change in inclusion rates. Hence, the control variables measured with error might explain 2 of the 7 percentage points, resulting in a change measure of 5 percentage points. Similar logic can be applied to the starting point measure, which captures unexplained differences in inclusion rates among states.

If the subjective interpretation of a control variable is not completely random but, to some extent, differs systematically and is correlated with some observable or non-observable characteristic, bias will occur in the estimated coefficients. In our analysis, the potentially subjective variables, type of disability and severity level, are control variables and are not variables of interest. What is of interest are the state-level predictions we obtain from applying the model to data. The subjectivity, therefore, will be of concern if it is correlated somehow with states or a state-level characteristic. For example, we would be concerned if we saw systematic differences in the definition of autism across states. Such a systematic difference will cause bias in our estimates of change.

The bias is a concern in the regression models where the model is estimated using data from all states at the same time: the nation-based measure of change, the nation-based starting point measure, and the state-specific starting point measure. The bias from systematic subjectivity is not a concern in the state-specific approach for measuring change because here the regression model is estimated separately for each state. Subjectivity within the state will still cause measurement error, as discussed above, but the bias in calculating state-level statistics will be removed. For the state-specific approach's change measure, however, it will be a concern if the subjective interpretation of a variable is thought to change over time within a state.

An additional source of error that affects models for measuring the starting point and the nation-based model for measuring change, but not the state-specific model for measuring change, is small differences between the 2005 and 2007 SD questionnaires. As discussed above, the 2007 SD questionnaire includes a question that asks directly whether the student receives an accommodation on the state assessment that is not allowed on NAEP, which enables a more accurate gauge of who receives such an accommodation. The 2005 questionnaire, on the other hand, has a number of "other accommodation" items that create ambiguity. The effect is that the coefficient on "received an accommodation on the state assessment not allowed on NAEP" will have some error due to ambiguity as to whether all the appropriate students were included in estimating this effect. This will result in an added element of unreliability in the estimated measures that we cannot predict. As stated above, the state-specific measure of change is, however, not affected by this problem as the variable does not enter that model.

CHANGES IN IDENTIFICATION RATES OF STUDENTS WITH DISABILITIES

In this report, we do not control explicitly for changes in identification rates of students with disabilities but random changes will automatically be accounted for by our control variables. In our method, the inclusion rates of SDs in the initial period set expectations for the inclusion of SDs in the second period. The assumption is that the group of students with a given set of characteristics in the first period is not different from the group of students with the same characteristics in the second period. As long as this assumption holds, we can apply the expectations set by the initial period whether the proportion of students who are SDs in a state changes or not. If, however, changes in the proportion of students who are SD in a state are due to changes in identification policy, this can cause some inaccuracies in our method.

Say, for example, that a state decides that a particular group of students who in the initial period would have not been identified as SD, and hence are all included, are in the second period identified as students with disabilities, and that they all have the following characteristics: they have a specific learning disability; the disability is classified as mild; they are receiving *at or above* grade-level instruction in the subject being assessed; they did not receive an accommodation on the state assessment that was not allowed on NAEP. According to our method, these students are expected to be treated as other students with those characteristics. If they are instead more mildly disabled than other students with those characteristics and hence, for example, all included, our partitioning methods might conclude that this state was improving in its inclusion of SDs. This conclusion would be based on the fact that students of this type are included more often. The underlying reason, however, is not that the state is being more inclusive, but rather that they increased their identification rate.

Such a shift in policy might cause a jump in the change measure. But, it will also raise the expectation of inclusion for that state for measuring change over the following period. If the state were to reverse this policy in the third period, then the state would see a jump in the opposite direction from period 2 to period 3. This discussion applies equally to the nation-based and state-specific methods.

CAUTION AGAINST NORMATIVE INTERPRETATIONS

The purpose of this report is to develop measures of changes in inclusion rates. As such, we develop expected or predicted inclusion rates. It is important to emphasize that predicted inclusion rates are not to be interpreted as normative. At the same time in this report, positive change in inclusion rates is interpreted as a desirable result, in alignment with the intent and language of the NAEP legislation (National Assessment of Educational Progress Authorization Act of 2002), which requires NAEP to report scores for SD and ELL populations, and the NCLB act.

NCLB regulations require states to conduct academic assessments for accountability purposes and aspire to the ideal of having all students participate. A Federal Register summary of the regulations (U.S. Department of Education 2002) describes it thus:

> *The final IDEA regulations that are included in these regulations provide that a State's (or in the case of district-wide assessments, an LEA's) guidelines require each child to be validly assessed and identify, for each assessment, any accommodations that would result in an invalid score. Consistent with Title I, a student with disabilities must receive a valid score in order to be counted as a participant under the IDEA.*

These regulations apply to state assessments that are used for accountability purposes and do not apply directly to NAEP. Nevertheless, we provide this as justification that higher participation rates on NAEP can generally be thought of as a *good.* We do not claim, however, that the ideal participation rate is 100 percent. Given that NAEP's construct is fixed, certain accommodations would invalidate the NAEP score. Hence, if a student required such an accommodation to be assessed, he or she would need to be excluded from NAEP.

Although in this report we generally refer to higher inclusion rates on NAEP as better, we make no claim about which students should or should not be assessed on NAEP. For measuring change, a comparison point needs to be set. Although it is tempting to interpret such comparison points as norms for inclusion, they should not be interpreted as such. We can set such points and still not interpret them as normative.

As an example, consider a completely naïve approach to measuring change in inclusion rates. The approach would say that a state's inclusion rate in one period is what we expect it to be in the next period. This would be a legitimate, though naïve, way of measuring change, and it places no normative interpretation on the benchmark, the state's initial inclusion rate, that is set for measuring change. Similarly, in our approach that sets the benchmarks to hold differences in the distribution of SD characteristics constant, the benchmarks are set to measure change and should not be interpreted normatively as target, correct, or desirable inclusion rates.

Although our benchmarks for measuring change should not be normatively interpreted, the measure of change itself is in this report. Under NCLB regulations, all students, including SDs, should be assessed by states. This creates a norm that is here applied to NAEP. In the naïve example given above, our crude measure of change could call an increase in inclusion rates good. The more complex approach we take here is to factor out changes in the distribution of SD characteristics when deciding whether the change is really good or not. Hence, though the benchmarks do not themselves provide normative content, the change measures that they allow do.

RESULTS

NATION-BASED RESULTS

Results for the nation-based approach are provided in tables 9 through 12 for grades 4 and 8, mathematics and reading, for changes between the 2005 school year and the 2007 school year.[22,23] Fit statistics indicate that the regressions fit the data adequately. Logit pseudo R^2 statistics were .35 for mathematics grade 4, .30 for mathematics grade 8, .33 for reading grade 4, and .30 for reading grade 8.[24] Likelihood ratio tests were all statistically significant at the .01 level.

The first row in table 9 (first two columns) shows that Alabama had an 89.6 percent actual inclusion rate for 2005 and an 88.3 percent for 2007. According to the nation-based model results in columns 3 and 4, Alabama had state-level predicted inclusion rates of 79.7 percent in 2005 and 83.0 percent in 2007. This predicted inclusion rate is based on the proportions of students with different types and severities of disabilities and accommodations offered by the state for its own state assessment tests that are not allowed on NAEP. The resulting differences between actual and predicted inclusion rates are 9.9 and 5.4 in 2005 and 2007, respectively. The change between 2005 and 2007 was thus measured to be –4.6 percentage points, as shown in column 7. In other words, of students with the same disability profile, 4.6 percent fewer were included in Alabama in 2007 than in 2005. This change was not statistically significant. As shown in the last column, Alabama's 2005 starting point measure, the difference from predicted for 2005, placed it in the top quartile (i.e., the 4th quartile), with a change score of 0, for a composite index score of (4,0).

Tables 9 through 12 also show wide variation in state-level predicted inclusion rates (columns 3 and 4). These rates represent the inclusion rate we would expect the state to have because of the characteristics of the SDs in the state and the availability of an accommodation on the state assessment that is not allowed on NAEP. These predicted inclusion rates illustrate that on the sole basis of different distribution of SD characteristics across states, we expect inclusion rates on the grade 4 NAEP mathematics assessment to range from 71.6 (District of Columbia) to 87.1 (Mississippi) in 2005 and from 73.3 (Tennessee) to 87.4 (Mississippi) in 2007.

As can be seen in tables 9 through 12, most states did not make statistically significant changes from 2005 in their rate of inclusion. In about one-third of the states, there were significant changes in inclusion rates for the mathematics assessments; in about half the states, there were significant changes for the reading assessments.[25] States that were less inclusive of SDs in 2007 than 2005 outnumbered states that were more inclusive:

- For grade 4 mathematics, 7 states were significantly more inclusive in 2007 than in 2005, and 8 states were significantly less inclusive.
- For grade 8 mathematics, 2 states were significantly more inclusive and 17 states were significantly less inclusive.
- For grade 4 reading, 8 states were significantly more inclusive, and 18 were significantly less inclusive.

22 Results for changes from 2003 to 2005 using the nation-based method are in appendix tables B-1 through B-4.

23 Tables 13 through 16 present results for the state-specific approach.

24 Pseudo R^2 statistics reported for logistic regressions are approximations to OLS R^2 statistics but are not the same and a number of different approximations exist. Here we report Nagelkerke's (1991) re-centered pseudo R^2.

25 Tables 19 through 22 show which states were in each starting point quartile and whether or not they had positive, negative, or no significant change from 2005 to 2007.

- For grade 8 reading, 4 states were significantly more inclusive, and 21 states were significantly less inclusive.

Tables 17 and 18 present the counts of states with positive change, negative change, and no significant change by the quartile of their initial inclusion rate. Across each grade and subject in the nation-based results, states that were more inclusive in 2007—in other words, that had significant positive change—were in the lowest two quartiles of the starting point measure, meaning that they had lower initial inclusion rates than half the states. For states that became significantly less inclusive in 2007, in mathematics there was no obvious association with initial inclusion rates. In reading, however, more states were prevalent in the upper quartiles of the starting point measure. Tables 19 through 22 show which states were in each quartile of initial inclusiveness and whether or not they had positive, negative, or no significant change from 2005 to 2007.

Table 9. Actual and predicted percentages of students with disabilities in NAEP grade 4 mathematics assessments, starting point and change measures, using nation-based approach: By state, 2005 and 2007

State	Actual rates		Predicted rates		Diff. from predicted[1]				
	2005 (a)	2007 (b)	2005 (c)	2007 (d)	2005 (e) (a–c)	2007 (f) (b–d)	Change 2005–07 (f–e)	Standard error	Composite Index[2]
Alabama	89.6	88.3	79.7	83.0	9.9	5.4	–4.6	2.83	(4,0)
Alaska	93.7	91.3	84.1	81.5	9.7	9.8	0.2	1.83	(4,0)
Arizona	80.3	83.4	82.7	82.0	–2.4	1.4	3.8	3.28	(1,0)
Arkansas	86.3	79.8	78.1	77.8	8.2	2.0	–6.2 *	2.81	(4,–1)
California	81.0	83.9	83.6	83.1	–2.6	0.8	3.3	2.55	(1,0)
Colorado	83.7	88.2	79.2	79.9	4.5	8.3	3.8	2.77	(3,0)
Connecticut	87.9	89.7	86.0	82.5	1.9	7.2	5.2 *	2.24	(2,1)
Delaware	58.4	73.1	80.1	78.2	–21.8	–5.1	16.7 *	2.65	(1,1)
District of Columbia	67.7	66.3	71.6	75.1	–3.9	–8.8	–4.9	3.17	(1,0)
Florida	88.6	88.3	83.9	85.3	4.6	3.0	–1.6	2.66	(3,0)
Georgia	87.9	83.5	84.1	83.5	3.8	0.0	–3.8	2.53	(3,0)
Hawaii	85.2	90.5	79.5	81.0	5.7	9.5	3.9	2.58	(4,0)
Idaho	92.2	86.3	80.5	80.7	11.7	5.7	–6.0 *	2.29	(4,–1)
Illinois	86.5	77.6	81.9	83.1	4.6	–5.5	–10.2 *	2.77	(3,–1)
Indiana	91.7	85.7	86.1	85.1	5.6	0.6	–5.0	2.64	(4,0)
Iowa	88.3	90.0	85.0	82.9	3.3	7.1	3.8	2.60	(3,0)
Kansas	85.7	78.9	80.3	79.1	5.5	–0.2	–5.6	2.99	(4,0)
Kentucky	83.7	84.2	80.4	83.6	3.3	0.6	–2.7	2.90	(2,0)
Louisiana	83.8	87.8	84.7	84.1	–0.9	3.7	4.6	2.91	(2,0)
Maine	83.0	83.7	81.0	81.2	2.0	2.5	0.5	2.66	(2,0)
Maryland	79.4	72.7	81.7	81.3	–2.3	–8.6	–6.3 *	3.10	(1,–1)
Massachusetts	83.9	74.3	83.9	80.7	0.0	–6.3	–6.3	3.45	(2,0)
Michigan	74.6	76.1	78.4	81.2	–3.8	–5.1	–1.3	3.31	(1,0)
Minnesota	86.3	85.9	82.4	80.9	4.0	5.0	1.0	2.93	(3,0)
Mississippi	80.4	92.3	87.1	87.4	–6.6	4.9	11.5 *	2.95	(1,1)
Missouri	87.2	76.6	82.7	81.4	4.5	–4.8	–9.2 *	3.17	(3,–1)
Montana	83.4	81.7	80.6	77.3	2.7	4.4	1.7	3.17	(2,0)
Nebraska	88.7	85.7	85.1	85.2	3.6	0.5	–3.2	2.59	(3,0)
Nevada	80.7	84.5	83.3	82.3	–2.6	2.1	4.7	3.47	(1,0)
New Hampshire	90.3	88.7	82.0	82.3	8.3	6.4	–1.9	2.15	(4,0)
New Jersey	87.7	88.0	83.9	82.5	3.8	5.5	1.7	3.21	(3,0)
New Mexico	89.3	83.2	81.9	80.2	7.4	3.0	–4.4	3.55	(4,0)
New York	83.7	91.2	83.2	85.2	0.5	6.0	5.5 *	2.56	(2,1)
North Carolina	87.5	89.7	83.7	84.6	3.8	5.1	1.3	1.87	(3,0)
North Dakota	85.5	76.3	84.9	81.9	0.6	–5.6	-6.2 *	2.32	(2,–1)
Ohio	73.0	71.5	78.9	77.3	–5.9	–5.8	0.1	4.43	(1,0)
Oklahoma	78.8	67.8	78.5	79.9	0.3	–12.1	–12.5 *	3.27	(2,–1)
Oregon	78.7	85.8	80.0	80.3	–1.3	5.5	6.8 *	2.91	(2,1)
Pennsylvania	85.3	86.1	80.5	81.5	4.8	4.6	–0.1	3.07	(3,0)
Rhode Island	87.9	91.0	84.6	84.0	3.3	7.0	3.7	2.45	(2,0)
South Carolina	73.8	88.1	83.4	85.7	–9.6	2.4	12.1 *	2.56	(1,1)
South Dakota	91.0	92.2	86.1	85.2	4.9	7.0	2.1	1.51	(3,0)
Tennessee	76.1	59.4	73.3	73.3	2.8	–13.9	–16.7 *	4.32	(2,–1)
Texas	65.2	62.8	82.5	82.8	–17.3	–19.9	–2.6	3.04	(1,0)
Utah	88.6	84.4	81.8	82.0	6.8	2.4	–4.4	2.56	(4,0)
Vermont	80.4	86.4	79.1	78.2	1.3	8.2	6.9 *	2.36	(2,1)
Virginia	71.6	74.1	82.4	82.8	–10.8	–8.7	2.1	3.33	(1,0)
Washington	85.4	85.7	78.1	80.5	7.3	5.3	–2.0	2.58	(4,0)
West Virginia	88.5	91.6	84.3	87.4	4.1	4.2	0.1	1.83	(3,0)
Wisconsin	88.3	85.5	81.3	82.7	7.0	2.8	–4.2	2.88	(4,0)
Wyoming	91.8	89.6	83.2	81.1	8.6	8.6	#	2.02	(4,0)

* 2005–2007 change over time is significantly different from zero ($p < .05$).

Estimate rounds to zero.

[1] The 2005 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if the change is positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 10. Actual and predicted percentages of students with disabilities in NAEP grade 8 mathematics assessments, starting point and change measures, using nation-based approach: By state, 2005 and 2007

State	Actual rates		Predicted rates		Diff. from predicted[1]				
	2005 (a)	2007 (b)	2005 (c)	2007 (d)	2005 (e) (a–c)	2007 (f) (b–d)	Change 2005–07 (f–e)	Standard error	Composite Index[2]
Alabama	92.3	76.8	78.9	76.7	13.4	0.1	–13.3 *	4.01	(4,–1)
Alaska	84.2	63.1	78.0	72.3	6.2	–9.2	–15.4 *	3.41	(3,–1)
Arizona	71.4	75.3	77.5	78.2	–6.1	–2.9	3.2	5.33	(1,0)
Arkansas	80.2	81.7	74.0	76.1	6.3	5.6	–0.7	3.39	(3,0)
California	84.4	83.0	78.6	81.4	5.9	1.6	–4.3	2.54	(3,0)
Colorado	83.9	87.2	77.6	77.6	6.3	9.6	3.3	2.75	(3,0)
Connecticut	83.7	90.7	80.9	81.3	2.9	9.4	6.6 *	2.09	(2,1)
Delaware	34.1	57.1	71.2	72.2	–37.1	–15.1	22.0 *	3.25	(1,1)
District of Columbia	71.2	45.7	70.5	69.9	0.7	–24.2	–24.9 *	3.48	(2,–1)
Florida	85.6	83.5	78.6	80.8	7.0	2.7	–4.3	2.80	(4,0)
Georgia	82.0	50.2	79.5	79.6	2.5	–29.4	–31.9 *	3.78	(2,–1)
Hawaii	86.1	90.8	79.2	79.5	6.9	11.3	4.5	2.29	(3,0)
Idaho	86.3	86.6	76.2	76.8	10.1	9.7	–0.3	2.59	(4,0)
Illinois	83.7	65.6	76.7	74.3	6.9	–8.7	–15.7 *	4.10	(3,–1)
Indiana	76.5	63.8	77.3	77.5	–0.8	–13.7	–12.9 *	4.46	(2,–1)
Iowa	83.8	84.2	76.7	80.6	7.1	3.6	–3.5	3.33	(4,0)
Kansas	76.6	69.5	73.4	72.1	3.3	–2.6	–5.9	4.04	(2,0)
Kentucky	72.7	51.5	76.0	72.7	–3.3	–21.1	–17.9 *	4.41	(1,–1)
Louisiana	70.7	74.1	75.1	74.9	–4.4	–0.8	3.6	5.43	(1,0)
Maine	75.2	71.9	73.7	77.0	1.4	–5.1	–6.5	3.43	(2,0)
Maryland	67.2	38.3	74.1	73.2	–6.9	–34.9	–27.9 *	5.04	(1,–1)
Massachusetts	68.6	49.4	76.3	73.2	–7.7	–23.8	–16.0 *	4.40	(1,–1)
Michigan	69.4	69.1	75.3	74.1	–5.9	–4.9	1.0	4.25	(1,0)
Minnesota	85.5	83.4	76.4	76.3	9.1	7.1	–1.9	2.78	(4,0)
Mississippi	68.6	78.5	80.8	83.0	–12.3	–4.5	7.8	5.09	(1,0)
Missouri	72.5	65.4	73.0	73.2	–0.5	–7.8	–7.3	3.99	(2,0)
Montana	84.2	77.3	77.8	74.8	6.5	2.5	–4.0	3.19	(3,0)
Nebraska	91.1	83.0	81.3	81.9	9.8	1.0	–8.8 *	2.68	(4,–1)
Nevada	82.4	73.8	80.6	76.9	1.7	–3.1	–4.9	3.51	(2,0)
New Hampshire	87.9	83.3	78.4	80.0	9.6	3.3	–6.2 *	2.43	(4,–1)
New Jersey	83.1	82.7	79.5	78.5	3.6	4.2	0.6	4.01	(3,0)
New Mexico	87.1	83.5	78.2	76.3	8.9	7.2	–1.7	2.63	(4,0)
New York	81.2	79.3	79.9	80.9	1.3	–1.7	–3.0	3.28	(2,0)
North Carolina	85.8	86.7	79.5	82.8	6.3	3.9	–2.4	2.39	(3,0)
North Dakota	74.0	58.1	75.2	75.3	–1.2	–17.1	–16.0 *	3.12	(2,–1)
Ohio	59.9	53.6	70.8	67.6	–10.9	–14.0	–3.0	5.14	(1,0)
Oklahoma	76.5	44.9	73.4	73.7	3.1	–28.8	–31.9 *	4.46	(2,–1)
Oregon	82.1	78.0	73.6	76.4	8.5	1.6	–6.9 *	3.08	(4,–1)
Pennsylvania	80.8	77.9	75.9	78.0	4.9	–0.1	–5.0	4.15	(3,0)
Rhode Island	85.1	88.0	81.0	82.4	4.1	5.6	1.5	2.21	(3,0)
South Carolina	59.2	60.2	78.8	79.6	–19.5	–19.4	0.1	4.73	(1,0)
South Dakota	82.9	78.3	75.7	75.4	7.2	2.9	–4.3	2.47	(4,0)
Tennessee	68.7	47.0	71.3	71.0	–2.6	–24.0	–21.4 *	4.70	(2,–1)
Texas	61.0	58.5	78.3	78.6	–17.3	–20.1	–2.8	3.48	(1,0)
Utah	82.4	77.1	74.2	74.6	8.2	2.5	–5.7	3.06	(4,0)
Vermont	79.2	78.0	75.8	74.3	3.3	3.7	0.4	2.41	(3,0)
Virginia	70.9	58.9	79.5	78.5	–8.6	–19.6	–11.0 *	4.14	(1,–1)
Washington	83.0	73.1	74.3	74.0	8.7	–0.9	–9.6 *	3.88	(4,–1)
West Virginia	83.0	88.9	80.0	83.0	3.0	5.9	2.9	2.20	(2,0)
Wisconsin	78.7	73.6	72.1	74.2	6.6	–0.5	–7.1	3.66	(3,0)
Wyoming	89.4	84.7	78.8	79.4	10.6	5.3	–5.2	2.77	(4,0)

* 2005–2007 change over time significantly different from zero ($p < .05$).

[1] The 2005 difference from predicted is also the starting point measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 11. Actual and predicted percentages of students with disabilities in NAEP grade 4 reading assessments, starting point and change measures, using nation-based approach: By state, 2005 and 2007

State	Actual rates		Predicted rates		Diff. from predicted[1]				
	2005 (a)	2007 (b)	2005 (c)	2007 (d)	2005 (e) (a–c)	2007 (f) (b–d)	Change 2005–07 (f–e)	Standard error	Composite Index[2]
Alabama	85.3	78.1	65.3	71.6	20.0	6.6	–13.4 *	3.01	(4,–1)
Alaska	84.5	80.9	66.3	69.2	18.2	11.7	–6.5	3.55	(4,0)
Arizona	66.7	74.9	66.2	70.7	0.5	4.1	3.6	4.40	(2,0)
Arkansas	53.3	55.0	60.0	67.2	–6.7	–12.2	–5.5	4.59	(1,0)
California	74.9	77.3	71.8	73.7	3.1	3.6	0.5	3.02	(2,0)
Colorado	78.6	79.9	64.0	69.3	14.7	10.6	–4.0	3.34	(4,0)
Connecticut	78.5	85.1	69.4	72.8	9.0	12.2	3.2	3.30	(3,0)
Delaware	28.6	46.0	59.3	58.5	–30.7	–12.4	18.3 *	2.80	(1,1)
District of Columbia	57.7	28.6	54.1	57.2	3.6	–28.6	–32.2 *	3.66	(3,–1)
Florida	76.0	77.3	71.2	75.7	4.8	1.7	–3.2	3.51	(3,0)
Georgia	59.7	43.4	62.9	65.9	–3.3	–22.5	–19.3 *	4.12	(2,–1)
Hawaii	82.5	77.1	68.5	68.8	14.0	8.4	–5.7	3.66	(4,0)
Idaho	72.2	77.2	64.1	69.5	8.2	7.6	–0.5	4.31	(3,0)
Illinois	65.3	67.5	64.4	70.9	1.0	–3.3	–4.3	4.26	(2,0)
Indiana	75.2	77.6	67.6	72.6	7.6	5.0	–2.6	3.89	(3,0)
Iowa	65.2	71.2	60.2	65.9	5.0	5.3	0.3	5.12	(3,0)
Kansas	77.4	62.4	62.2	70.4	15.3	–8.0	–23.2 *	4.32	(4,–1)
Kentucky	45.4	53.1	58.8	66.3	–13.4	–13.1	0.3	3.26	(1,0)
Louisiana	41.2	79.3	64.9	70.7	–23.7	8.6	32.3 *	4.79	(1,1)
Maine	65.8	69.5	66.0	67.8	–0.2	1.7	1.9	3.51	(2,0)
Maryland	63.3	51.4	67.3	66.4	–3.9	–15.0	–11.1 *	3.55	(2,–1)
Massachusetts	67.2	72.1	67.1	67.5	0.2	4.5	4.3	3.27	(2,0)
Michigan	52.3	68.2	61.9	67.6	–9.7	0.6	10.3 *	4.51	(1,1)
Minnesota	84.5	77.1	70.6	72.9	13.9	4.1	–9.7 *	3.02	(4,–1)
Mississippi	66.9	77.6	74.5	76.6	–7.6	1.0	8.6 *	3.93	(1,1)
Missouri	55.8	78.9	63.2	73.2	–7.4	5.6	13.1 *	3.37	(1,1)
Montana	61.1	64.8	59.0	63.6	2.1	1.1	–1.0	4.42	(2,0)
Nebraska	75.2	72.1	70.5	72.1	4.7	0.0	–4.7	3.63	(3,0)
Nevada	60.4	70.1	64.2	69.2	–3.8	1.0	4.7	4.62	(2,0)
New Hampshire	83.0	79.8	68.4	72.7	14.6	7.0	–7.5 *	3.60	(4,–1)
New Jersey	73.8	61.7	64.7	66.8	9.0	–5.1	–14.2 *	5.22	(3,–1)
New Mexico	64.4	54.2	64.2	69.5	0.2	–15.2	–15.4 *	5.05	(2,–1)
New York	74.5	72.5	68.8	71.1	5.7	1.4	–4.3	4.03	(3,0)
North Carolina	83.2	87.6	69.1	74.0	14.2	13.6	–0.6	2.44	(4,0)
North Dakota	64.7	46.2	67.1	65.7	–2.4	–19.5	–17.1 *	2.92	(2,–1)
Ohio	40.8	50.6	54.4	61.1	–13.5	–10.4	3.1	4.86	(1,0)
Oklahoma	72.5	58.8	63.9	67.6	8.6	–8.9	–17.5 *	4.22	(3,–1)
Oregon	69.4	74.3	67.0	69.2	2.3	5.1	2.7	3.29	(2,0)
Pennsylvania	73.3	72.0	63.5	68.9	9.7	3.1	–6.6	4.09	(4,0)
Rhode Island	88.0	82.9	70.1	72.8	17.9	10.1	–7.8 *	2.61	(4,–1)
South Carolina	61.1	73.7	70.0	72.5	–8.9	1.2	10.2 *	3.54	(1,1)
South Dakota	71.4	66.2	65.1	71.1	6.3	–4.9	–11.2 *	2.72	(3,–1)
Tennessee	38.4	37.0	53.6	58.7	–15.2	–21.7	–6.5	5.30	(1,0)
Texas	58.5	51.7	72.7	71.3	–14.2	–19.6	–5.4	3.25	(1,0)
Utah	72.0	62.8	66.0	68.5	6.0	–5.7	–11.7 *	4.01	(3,–1)
Vermont	68.4	67.0	59.7	64.3	8.6	2.7	–6.0 *	2.96	(3,–1)
Virginia	36.8	55.5	59.7	70.0	–22.9	–14.5	8.4 *	3.85	(1,1)
Washington	76.8	72.5	63.3	68.5	13.5	4.0	–9.5 *	4.16	(4,–1)
West Virginia	69.1	91.0	69.4	74.7	–0.3	16.4	16.7 *	2.77	(2,1)
Wisconsin	71.7	72.4	61.5	70.1	10.2	2.3	–7.9 *	3.95	(4,–1)
Wyoming	90.4	78.6	67.8	68.4	22.7	10.3	–12.4 *	2.22	(4,–1)

* 2005–2007 change over time significantly different from zero ($p < .05$).

[1] The 2005 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 12. Actual and predicted percentages of students with disabilities in NAEP grade 8 reading assessments, starting point and change measures, using nation-based approach: By state, 2005 and 2007

State	Actual rates		Predicted rates		Diff. from predicted[1]				
	2005 (a)	2007 (b)	2005 (c)	2007 (d)	2005 (e) (a–c)	2007 (f) (b–d)	Change 2005–07 (f–e)	Standard error	Composite Index[2]
Alabama	88.0	74.2	72.7	74.0	15.3	0.2	–15.1 *	4.55	(4,–1)
Alaska	88.0	84.1	72.8	72.5	15.2	11.6	–3.6	2.57	(4,0)
Arizona	73.3	67.3	67.9	73.3	5.5	–6.0	–11.5 *	4.17	(3,–1)
Arkansas	62.0	62.1	60.8	71.8	1.2	–9.7	–11.0 *	5.22	(2,–1)
California	80.1	80.3	71.5	77.1	8.7	3.2	–5.4	2.92	(3,0)
Colorado	76.7	78.1	68.3	74.9	8.4	3.2	–5.3	3.93	(3,0)
Connecticut	84.4	87.0	75.4	75.7	9.1	11.3	2.3	2.42	(3,0)
Delaware	33.3	62.6	62.0	64.4	–28.7	–1.8	26.9 *	3.22	(1,1)
District of Columbia	62.1	33.6	62.6	59.6	–0.5	–26.1	–25.5 *	3.11	(2,–1)
Florida	80.2	83.5	72.3	77.9	7.9	5.5	–2.3	2.52	(3,0)
Georgia	62.4	45.0	69.2	69.7	–6.8	–24.8	–18.0 *	4.46	(2,–1)
Hawaii	82.4	87.6	72.8	74.2	9.6	13.4	3.8	2.40	(4,0)
Idaho	81.5	74.9	70.4	74.9	11.1	0.0	–11.1 *	3.41	(4,–1)
Illinois	72.4	72.4	66.9	70.3	5.6	2.1	–3.5	4.49	(3,0)
Indiana	73.5	70.9	70.4	72.4	3.1	–1.5	–4.5	3.93	(2,0)
Iowa	75.9	71.7	69.6	73.0	6.4	–1.3	–7.7 *	3.73	(3,–1)
Kansas	72.6	65.9	64.3	71.6	8.4	–5.8	–14.1 *	4.07	(3,–1)
Kentucky	44.8	42.4	60.7	63.5	–15.9	–21.1	–5.2	4.17	(1,0)
Louisiana	49.8	80.1	67.0	74.5	–17.2	5.6	22.8 *	5.56	(1,1)
Maine	65.9	67.9	67.3	72.0	–1.4	–4.1	–2.7	3.18	(2,0)
Maryland	69.1	47.8	66.2	67.2	2.8	–19.4	–22.2 *	4.60	(2,–1)
Massachusetts	69.0	68.7	70.3	71.9	–1.3	–3.2	–1.8	4.05	(2,0)
Michigan	56.1	63.4	65.7	71.3	–9.7	–7.8	1.9	4.33	(1,0)
Minnesota	82.8	73.2	71.0	73.4	11.8	–0.2	–12.0 *	3.34	(4,–1)
Mississippi	58.0	63.2	74.1	75.9	–16.1	–12.7	3.5	5.59	(1,0)
Missouri	49.5	76.1	62.7	73.8	–13.2	2.4	15.5 *	4.22	(1,1)
Montana	66.6	69.2	66.4	71.5	0.2	–2.3	–2.5	3.78	(2,0)
Nebraska	77.2	73.8	67.5	74.7	9.7	–0.9	–10.6 *	3.07	(4,–1)
Nevada	74.7	69.5	71.6	70.6	3.1	–1.1	–4.2	3.78	(2,0)
New Hampshire	87.7	80.7	73.8	76.8	13.9	3.9	–10.0 *	2.29	(4,–1)
New Jersey	78.5	64.7	72.6	71.7	5.9	–7.0	–12.9 *	4.55	(3,–1)
New Mexico	68.7	60.5	70.5	73.0	–1.8	–12.5	–10.6 *	3.75	(2,–1)
New York	65.2	66.8	69.4	74.8	–4.1	–8.0	–3.8	4.31	(2,0)
North Carolina	80.9	83.2	71.1	76.9	9.8	6.3	–3.5	3.24	(4,0)
North Dakota	55.9	38.7	65.5	68.2	–9.6	–29.4	–19.9 *	3.24	(1,–1)
Ohio	50.8	50.9	63.9	63.1	–13.1	–12.2	1.0	4.50	(1,0)
Oklahoma	74.2	59.3	65.9	71.2	8.4	–11.8	–20.2 *	3.84	(3,–1)
Oregon	77.4	81.5	68.0	70.7	9.4	10.8	1.4	2.83	(4,0)
Pennsylvania	79.3	73.8	69.0	73.8	10.3	0.1	–10.3 *	4.18	(4,–1)
Rhode Island	84.6	85.3	74.0	78.2	10.6	7.0	–3.6	1.91	(4,0)
South Carolina	52.2	57.2	68.7	72.2	–16.5	–15.0	1.5	4.51	(1,0)
South Dakota	73.0	50.6	62.7	70.3	10.3	–19.6	–29.9 *	3.93	(4,–1)
Tennessee	43.4	40.7	60.1	62.8	–16.7	–22.1	–5.4	4.66	(1,0)
Texas	63.1	56.6	73.7	72.8	–10.6	–16.1	–5.6	3.20	(1,0)
Utah	72.1	61.2	67.6	67.6	4.5	–6.4	–10.9 *	4.17	(2,–1)
Vermont	77.5	73.7	69.3	73.9	8.2	–0.2	–8.4 *	2.37	(3,–1)
Virginia	54.9	55.9	69.6	73.3	–14.7	–17.4	–2.7	3.62	(1,0)
Washington	72.5	67.5	65.6	71.8	7.0	–4.3	–11.3 *	4.17	(3,–1)
West Virginia	62.7	86.6	67.1	74.9	–4.4	11.7	16.1 *	3.43	(2,1)
Wisconsin	68.3	62.9	63.6	66.4	4.7	–3.5	–8.2	4.48	(3,0)
Wyoming	81.6	76.7	71.3	68.9	10.3	7.8	–2.5	2.83	(4,0)

* 2005–2007 change over time significantly different from zero ($p < .05$).

[1] The 2005 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 13. Actual and second-period predicted percentages of students with disabilities in NAEP grade 4 mathematics assessments, starting point and change measures, using state-specific approach: By state, 2005 and 2007

State	Actual rates		Starting point measure—2005		Predicted	2005–07 Change measure[1]		Composite Index[2]
	2005	2007	Estimated	Std error	2007	Change	Std error	
Alabama	89.6	88.3	7.5 *	1.98	89.5	–1.2	2.62	(4,0)
Alaska	93.7	91.3	8.0 *	1.32	92.6	–1.3	1.96	(4,0)
Arizona	80.3	83.4	–4.2	2.52	79.6	3.8	3.96	(1,0)
Arkansas	86.3	79.8	5.7 *	1.63	85.3	–5.5	3.28	(4,0)
California	81.0	83.9	–4.4 *	1.86	78.5	5.4 *	2.52	(1,1)
Colorado	83.7	88.2	2.8	2.03	81.8	6.4	3.64	(3,0)
Connecticut	87.9	89.7	0.2	1.58	85.6	4.1	2.68	(2,0)
Delaware	58.4	73.1	–23.5 *	1.95	57.1	16.0 *	2.62	(1,1)
District of Columbia	67.7	66.3	–7.3 *	1.97	71.7	–5.4	3.03	(1,0)
Florida	88.6	88.3	3.1	1.84	88.6	–0.3	2.59	(3,0)
Georgia	87.9	83.5	2.3	1.54	89.2	–5.7 *	2.69	(3,–1)
Hawaii	85.2	90.5	3.1	1.90	86.1	4.4	3.55	(3,0)
Idaho	92.2	86.3	9.9 *	1.45	92.2	–5.9 *	2.41	(4,–1)
Illinois	86.5	77.6	3.4 *	1.34	85.9	–8.3 *	3.30	(3,–1)
Indiana	91.7	85.7	4.9 *	1.63	91.0	–5.3 *	2.70	(4,–1)
Iowa	88.3	90.0	2.4	1.25	84.3	5.7 *	2.79	(3,1)
Kansas	85.7	78.9	4.1 *	1.42	83.9	–5.0	3.02	(4,0)
Kentucky	83.7	84.2	1.4	2.21	84.3	–0.1	2.93	(2,0)
Louisiana	83.8	87.8	–1.8	2.06	84.0	3.8	3.16	(2,0)
Maine	83.0	83.7	–0.2	1.95	84.3	–0.6	2.57	(2,0)
Maryland	79.4	72.7	–4.4 *	2.19	79.0	–6.3	3.32	(1,0)
Massachusetts	83.9	74.3	–1.7	1.97	80.6	–6.3	3.75	(2,0)
Michigan	74.6	76.1	–5.9 *	2.17	72.9	3.2	3.12	(1,0)
Minnesota	86.3	85.9	2.6	2.41	83.9	2.0	2.48	(3,0)
Mississippi	80.4	92.3	–8.1 *	2.37	85.3	7.0 *	2.99	(1,1)
Missouri	87.2	76.6	2.6	2.32	85.7	–9.1 *	3.38	(3,–1)
Montana	83.4	81.7	1.1	2.25	82.9	–1.2	3.49	(2,0)
Nebraska	88.7	85.7	2.8	1.53	88.0	–2.3	2.58	(3,0)
Nevada	80.7	84.5	–4.8	2.64	82.1	2.4	3.25	(1,0)
New Hampshire	90.3	88.7	6.4 *	1.26	89.2	–0.5	2.02	(4,0)
New Jersey	87.7	88.0	1.9	2.37	87.0	1.0	3.30	(3,0)
New Mexico	89.3	83.2	5.3 *	2.24	86.5	–3.3	3.62	(4,0)
New York	83.7	91.2	–1.9	1.98	86.1	5.1 *	2.36	(2,1)
North Carolina	87.5	89.7	2.4	1.25	87.9	1.8	1.90	(3,0)
North Dakota	85.5	76.3	–0.9	1.34	80.6	–4.3	3.02	(2,0)
Ohio	73.0	71.5	–7.9 *	3.28	75.4	–3.9	4.44	(1,0)
Oklahoma	78.8	67.8	–1.6	1.73	80.1	–12.3 *	3.85	(2,–1)
Oregon	78.7	85.8	–3.1	2.41	76.7	9.1 *	3.27	(2,1)
Pennsylvania	85.3	86.1	3.2	2.61	85.5	0.6	3.34	(3,0)
Rhode Island	87.9	91.0	1.9	2.05	86.5	4.5	2.51	(2,0)
South Carolina	73.8	88.1	–10.9 *	2.14	76.8	11.3 *	2.62	(1,1)
South Dakota	91.0	92.2	3.9 *	1.06	89.4	2.8	1.89	(4,0)
Tennessee	76.1	59.4	0.7	2.93	75.8	–16.4 *	4.79	(2,–1)
Texas	65.2	62.8	–19.3 *	1.79	65.7	–2.9	2.85	(1,0)
Utah	88.6	84.4	5.2 *	1.50	88.6	–4.2	3.00	(4,0)
Vermont	80.4	86.4	–1.0	1.80	77.3	9.1 *	2.90	(2,1)
Virginia	71.6	74.1	–12.4 *	2.59	72.9	1.2	3.46	(1,0)
Washington	85.4	85.7	5.1 *	1.72	87.0	–1.3	2.56	(4,0)
West Virginia	88.5	91.6	3.0 *	1.42	90.6	1.0	1.64	(3,0)
Wisconsin	88.3	85.5	5.2 *	1.94	88.2	–2.7	2.92	(4,0)
Wyoming	91.8	89.6	7.2 *	1.37	89.4	0.2	2.14	(4,0)

* Significantly different from zero ($p < .05$).

[1] In the state-specific approach, the *change measure* is, by construction, the difference between the 2007 actual and 2007 predicted rates.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 14. Actual and second-period predicted percentages of students with disabilities in NAEP grade 8 mathematics assessments, starting point and change measures, using state-specific approach: By state, 2005 and 2007

State	Actual rates		Starting point measure—2005		Predicted	2005–07 Change measure[1]		Composite Index[2]
	2005	2007	Estimated	Std error	2007	Change	Std error	
Alabama	92.3	76.8	11.9 *	1.89	91.5	–14.7 *	4.41	(4,–1)
Alaska	84.2	63.1	4.3 *	1.89	81.2	–18.1 *	3.91	(3,–1)
Arizona	71.4	75.3	–7.7 *	3.89	71.1	4.2	5.68	(1,0)
Arkansas	80.2	81.7	4.4 *	2.20	78.8	2.9	3.45	(3,0)
California	84.4	83.0	4.6 *	1.55	85.9	–2.9	2.64	(3,0)
Colorado	83.9	87.2	5.0 *	1.96	82.4	4.8	2.97	(3,0)
Connecticut	83.7	90.7	1.6	1.37	83.2	7.5 *	2.64	(2,1)
Delaware	34.1	57.1	–39.8 *	2.07	35.3	21.8 *	3.28	(1,1)
District of Columbia	71.2	45.7	–1.4	2.32	72.0	–26.3 *	3.47	(2,–1)
Florida	85.6	83.5	5.9 *	2.23	86.3	–2.8	2.81	(4,0)
Georgia	82.0	50.2	1.2	2.42	86.0	–35.8 *	3.85	(2,–1)
Hawaii	86.1	90.8	5.6 *	1.73	88.0	2.8	2.23	(3,0)
Idaho	86.3	86.6	9.0 *	1.69	87.4	–0.8	2.28	(4,0)
Illinois	83.7	65.6	5.8 *	2.32	83.3	–17.7 *	4.59	(4,–1)
Indiana	76.5	63.8	–1.9	2.47	78.2	–14.4 *	4.46	(2,–1)
Iowa	83.8	84.2	6.0 *	2.01	84.2	0.0	3.44	(4,0)
Kansas	76.6	69.5	1.7	2.61	72.4	–2.9	4.13	(2,0)
Kentucky	72.7	51.5	–5.4 *	2.49	70.6	–19.1 *	4.79	(1,–1)
Louisiana	70.7	74.1	–6.0	4.35	66.3	7.8	5.69	(1,0)
Maine	75.2	71.9	–0.5	2.29	77.1	–5.2	3.66	(2,0)
Maryland	67.2	38.3	–9.1 *	3.71	63.6	–25.3 *	5.23	(1,–1)
Massachusetts	68.6	49.4	–9.3 *	2.65	64.1	–14.7 *	4.32	(1,–1)
Michigan	69.4	69.1	–8.2 *	2.94	65.5	3.6	4.47	(1,0)
Minnesota	85.5	83.4	7.8 *	1.82	84.7	–1.3	2.76	(4,0)
Mississippi	68.6	78.5	–13.5 *	3.91	76.1	2.4	4.09	(1,0)
Missouri	72.5	65.4	–2.6	2.73	72.2	–6.8	4.20	(2,0)
Montana	84.2	77.3	4.9 *	1.64	84.9	–7.6 *	3.07	(3,–1)
Nebraska	91.1	83.0	8.9 *	1.43	91.0	–8.0 *	2.47	(4,–1)
Nevada	82.4	73.8	0.5	2.55	82.6	–8.8	4.78	(2,0)
New Hampshire	87.9	83.3	8.1 *	1.59	87.3	–4.0	2.58	(4,0)
New Jersey	83.1	82.7	1.9	2.70	84.5	–1.8	3.75	(3,0)
New Mexico	87.1	83.5	7.5 *	1.65	80.7	2.8	3.59	(4,0)
New York	81.2	79.3	0.0	2.23	82.9	–3.6	3.47	(2,0)
North Carolina	85.8	86.7	4.7 *	1.90	86.7	0.0	1.99	(3,0)
North Dakota	74.0	58.1	–2.9	1.98	73.2	–15.1 *	3.10	(2,–1)
Ohio	59.9	53.6	–13.2 *	3.82	59.0	–5.4	5.00	(1,0)
Oklahoma	76.5	44.9	1.0	2.38	76.2	–31.3 *	4.21	(2,–1)
Oregon	82.1	78.0	7.4 *	1.66	85.0	–7.0 *	3.37	(4,–1)
Pennsylvania	80.8	77.9	3.2	2.73	81.0	–3.1	4.43	(3,0)
Rhode Island	85.1	88.0	3.1 *	1.55	85.8	2.2	2.37	(3,0)
South Carolina	59.2	60.2	–20.8 *	3.43	66.0	–5.8	5.19	(1,0)
South Dakota	82.9	78.3	5.8 *	1.45	82.4	–4.1	2.83	(3,0)
Tennessee	68.7	47.0	–4.6	2.86	69.1	–22.1 *	5.17	(2,–1)
Texas	61.0	58.5	–18.6 *	2.48	59.9	–1.4	3.52	(1,0)
Utah	82.4	77.1	6.2 *	1.68	81.8	–4.7	3.35	(4,0)
Vermont	79.2	78.0	1.8	1.61	75.8	2.2	2.49	(2,0)
Virginia	70.9	58.9	–10.2 *	2.81	69.1	–10.2 *	4.10	(1,–1)
Washington	83.0	73.1	6.9 *	2.24	80.8	–7.7 *	3.76	(4,–1)
West Virginia	83.0	88.9	2.0	1.74	85.4	3.5	2.18	(3,0)
Wisconsin	78.7	73.6	5.0 *	2.06	76.5	–2.9	4.21	(3,0)
Wyoming	89.4	84.7	9.3 *	1.84	87.0	–2.3	2.79	(4,0)

* Significantly different from zero ($p < .05$).

[1] In the state-specific approach, the c*hange measure* is, by construction, the difference between the 2007 actual and 2007 predicted rates.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 15. Actual and second-period predicted percentages of students with disabilities in NAEP grade 4 reading assessments, starting point and change measures, using state-specific approach: By state, 2005 and 2007

State	Actual rates		Starting point measure—2005		Predicted	2005–07 Change measure[1]		Composite Index[2]
	2005	2007	Estimated	Std error	2007	Change	Std error	
Alabama	85.3	78.1	18.8 *	2.04	87.5	–9.4 *	2.94	(4,–1)
Alaska	84.5	80.9	16.4 *	2.63	84.8	–3.9	3.64	(4,0)
Arizona	66.7	74.9	–1.5	2.59	70.8	4.1	4.62	(2,0)
Arkansas	53.3	55.0	–9.5 *	3.24	55.5	–0.5	4.80	(1,0)
California	74.9	77.3	1.4	2.00	75.6	1.7	2.77	(3,0)
Colorado	78.6	79.9	12.9 *	2.25	76.7	3.2	2.82	(4,0)
Connecticut	78.5	85.1	7.7 *	2.52	79.3	5.8	3.30	(4,0)
Delaware	28.6	46.0	–34.0 *	2.16	27.5	18.5 *	2.72	(1,1)
District of Columbia	57.7	28.6	0.7	2.59	58.6	–30.0 *	3.39	(2,–1)
Florida	76.0	77.3	3.2	2.58	76.0	1.3	3.43	(3,0)
Georgia	59.7	43.4	–6.1 *	3.00	60.9	–17.5 *	4.22	(2,–1)
Hawaii	82.5	77.1	12.9 *	2.35	82.4	–5.3	3.79	(4,0)
Idaho	72.2	77.2	6.1 *	2.60	70.6	6.6	4.49	(3,0)
Illinois	65.3	67.5	–1.0	2.72	65.1	2.4	4.56	(2,0)
Indiana	75.2	77.6	5.4 *	2.74	77.0	0.6	4.37	(3,0)
Iowa	65.2	71.2	2.5	3.44	66.7	4.5	4.98	(3,0)
Kansas	77.4	62.4	13.0 *	2.48	76.5	–14.1 *	4.24	(4,–1)
Kentucky	45.4	53.1	–17.0 *	2.29	54.0	–0.9	3.48	(1,0)
Louisiana	41.2	79.3	–27.1 *	3.77	47.7	31.6 *	7.57	(1,1)
Maine	65.8	69.5	–2.9	2.57	62.0	7.5 *	3.47	(2,1)
Maryland	63.3	51.4	–6.0 *	2.48	62.6	–11.2 *	3.52	(2,–1)
Massachusetts	67.2	72.1	–2.1	2.21	64.5	7.6 *	3.37	(2,1)
Michigan	52.3	68.2	–12.5 *	3.39	50.5	17.7 *	4.58	(1,1)
Minnesota	84.5	77.1	12.4 *	1.78	84.2	–7.1 *	2.75	(4,–1)
Mississippi	66.9	77.6	–9.0 *	2.97	69.4	8.2 *	4.16	(1,1)
Missouri	55.8	78.9	–10.6 *	2.60	57.9	21.0 *	3.62	(1,1)
Montana	61.1	64.8	–0.1	2.90	59.3	5.5	4.65	(2,0)
Nebraska	75.2	72.1	2.6	2.65	75.0	–2.9	3.74	(3,0)
Nevada	60.4	70.1	–6.0	3.20	65.2	4.9	4.58	(2,0)
New Hampshire	83.0	79.8	12.6 *	2.26	82.6	–2.8	3.56	(4,0)
New Jersey	73.8	61.7	6.5	3.46	74.6	–12.9 *	5.62	(3,–1)
New Mexico	64.4	54.2	–2.0	3.70	64.1	–9.9	5.11	(2,0)
New York	74.5	72.5	3.8	2.44	76.2	–3.7	4.05	(3,0)
North Carolina	83.2	87.6	12.2 *	1.77	83.7	3.9	2.36	(4,0)
North Dakota	64.7	46.2	–4.8 *	1.95	61.0	–14.8 *	3.08	(2,–1)
Ohio	40.8	50.6	–16.8 *	2.78	45.0	5.6	4.67	(1,0)
Oklahoma	72.5	58.8	6.2 *	2.36	72.2	–13.4 *	4.44	(3,–1)
Oregon	69.4	74.3	0.4	2.34	70.0	4.3	3.49	(2,0)
Pennsylvania	73.3	72.0	7.4 *	2.68	73.3	–1.3	3.98	(3,0)
Rhode Island	88.0	82.9	16.2 *	1.63	86.7	–3.8	2.82	(4,0)
South Carolina	61.1	73.7	–10.5 *	2.42	62.7	11.0 *	3.92	(1,1)
South Dakota	71.4	66.2	3.8 *	1.77	72.6	–6.4 *	2.71	(3,–1)
Tennessee	38.4	37.0	–18.8 *	4.50	42.2	–5.2	5.12	(1,0)
Texas	58.5	51.7	–15.3 *	2.08	59.3	–7.6 *	3.25	(1,–1)
Utah	72.0	62.8	4.1	2.28	71.1	–8.3	4.57	(3,0)
Vermont	68.4	67.0	6.1 *	2.11	68.4	–1.4	2.93	(3,0)
Virginia	36.8	55.5	–26.3 *	2.60	39.2	16.3 *	4.24	(1,1)
Washington	76.8	72.5	11.4 *	2.98	78.0	–5.5	3.84	(4,0)
West Virginia	69.1	91.0	–2.4	2.32	70.2	20.8 *	2.82	(2,1)
Wisconsin	71.7	72.4	7.7 *	3.04	73.6	–1.2	4.00	(4,0)
Wyoming	90.4	78.6	21.1 *	1.45	89.5	–10.9 *	2.38	(4,–1)

* Significantly different from zero ($p < .05$).

[1] In the state-specific approach, the c*hange measure* is, by construction, the difference between the 2007 actual and 2007 predicted rates.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *chang*e score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 16. Actual and second-period predicted percentages of students with disabilities in NAEP grade 8 reading assessments, starting point and change measures, using state-specific approach: By state, 2005 and 2007

State	Actual rates		Starting point measure—2005		Predicted	2005–07 Change measure[1]		Composite Index[2]
	2005	2007	Estimated	Std error	2007	Change	Std error	
Alabama	88.0	74.2	14.4 *	2.30	87.4	–13.2 *	4.70	(4,–1)
Alaska	88.0	84.1	14.4 *	1.46	87.4	–3.3	2.41	(4,0)
Arizona	73.3	67.3	4.4	2.54	71.3	–4.0	5.81	(3,0)
Arkansas	62.0	62.1	–1.1	3.43	63.9	–1.8	5.41	(2,0)
California	80.1	80.3	7.6 *	1.75	82.9	–2.6	2.73	(3,0)
Colorado	76.7	78.1	7.0 *	2.78	78.8	–0.7	3.43	(3,0)
Connecticut	84.4	87.0	8.1 *	1.79	85.2	1.8	2.82	(3,0)
Delaware	33.3	62.6	–31.4 *	2.63	37.4	25.2 *	3.32	(1,1)
District of Columbia	62.1	33.6	–2.3	2.06	59.7	–26.1 *	3.09	(2,–1)
Florida	80.2	83.5	7.0 *	1.84	81.2	2.3	2.32	(3,0)
Georgia	62.4	45.0	–8.6 *	3.47	66.0	–21.0 *	4.66	(2,–1)
Hawaii	82.4	87.6	8.9 *	1.81	83.1	4.5	2.36	(4,0)
Idaho	81.5	74.9	9.7 *	2.18	77.2	–2.3	4.04	(4,0)
Illinois	72.4	72.4	4.5	3.25	70.3	2.1	4.52	(3,0)
Indiana	73.5	70.9	1.8	2.66	73.9	–3.0	4.25	(2,0)
Iowa	75.9	71.7	5.4 *	2.24	74.4	–2.7	3.88	(3,0)
Kansas	72.6	65.9	6.5 *	3.00	74.9	–9.0 *	4.02	(3,–1)
Kentucky	44.8	42.4	–18.9 *	2.90	48.5	–6.1	4.60	(1,0)
Louisiana	49.8	80.1	–19.6 *	3.86	52.9	27.2 *	4.98	(1,1)
Maine	65.9	67.9	–3.4	2.39	65.8	2.1	3.40	(2,0)
Maryland	69.1	47.8	0.8	3.06	69.2	–21.4 *	4.82	(2,–1)
Massachusetts	69.0	68.7	–2.6	2.51	70.4	–1.7	4.34	(2,0)
Michigan	56.1	63.4	–11.6 *	3.13	58.0	5.4	4.78	(1,0)
Minnesota	82.8	73.2	10.5 *	1.92	84.1	–10.9 *	3.08	(4,–1)
Mississippi	58.0	63.2	–16.9 *	4.03	64.0	–0.8	6.00	(1,0)
Missouri	49.5	76.1	–15.4 *	3.39	49.8	26.3 *	4.12	(1,1)
Montana	66.6	69.2	–1.2	2.46	67.5	1.7	3.90	(2,0)
Nebraska	77.2	73.8	8.7 *	1.84	80.0	–6.2	3.17	(4,0)
Nevada	74.7	69.5	1.8	2.38	72.7	–3.2	4.04	(2,0)
New Hampshire	87.7	80.7	12.9 *	1.29	88.2	–7.5 *	2.32	(4,–1)
New Jersey	78.5	64.7	4.6	2.92	78.7	–14.0 *	5.03	(3,–1)
New Mexico	68.7	60.5	–2.8	2.58	69.5	–9.0 *	3.74	(2,–1)
New York	65.2	66.8	–5.3	2.77	71.6	–4.8	4.69	(2,0)
North Carolina	80.9	83.2	8.4 *	2.27	81.8	1.4	2.93	(4,0)
North Dakota	55.9	38.7	–11.6 *	2.07	53.7	–15.0 *	3.27	(1,–1)
Ohio	50.8	50.9	–15.2 *	3.43	50.3	0.6	4.50	(1,0)
Oklahoma	74.2	59.3	7.0 *	2.64	76.3	–17.0 *	3.84	(3,–1)
Oregon	77.4	81.5	8.4 *	1.63	77.7	3.8	4.06	(4,0)
Pennsylvania	79.3	73.8	9.2 *	2.62	80.7	–6.9	3.90	(4,0)
Rhode Island	84.6	85.3	9.9 *	1.15	85.6	–0.3	1.82	(4,0)
South Carolina	52.2	57.2	–17.8 *	3.33	60.4	–3.2	5.45	(1,0)
South Dakota	73.0	50.6	8.6 *	2.15	74.4	–23.8 *	3.80	(4,–1)
Tennessee	43.4	40.7	–19.0 *	3.45	46.4	–5.7	5.49	(1,0)
Texas	63.1	56.6	–10.9 *	1.80	62.3	–5.7 *	2.72	(1,–1)
Utah	72.1	61.2	3.1	2.70	67.2	–6.0	4.46	(2,0)
Vermont	77.5	73.7	6.9 *	1.62	79.1	–5.4 *	2.33	(3,–1)
Virginia	54.9	55.9	–16.3 *	2.32	58.9	–3.0	4.04	(1,0)
Washington	72.5	67.5	5.7 *	2.75	73.6	–6.1	4.09	(3,0)
West Virginia	62.7	86.6	–6.1 *	2.91	67.4	19.2 *	3.68	(2,1)
Wisconsin	68.3	62.9	3.3	3.06	63.3	–0.4	4.82	(3,0)
Wyoming	81.6	76.7	9.4 *	2.08	80.0	–3.3	3.23	(4,0)

* Significantly different from zero ($p < .05$).

[1] In the state-specific approach, the c*hange measure* is, by construction, the difference between the 2007 actual and 2007 predicted rates.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *chang*e score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 17. Number of states in each composite index score category by estimation approach based on NAEP grades 4 and 8 mathematics assessments: 2005 and 2007

Starting Quartile	Grade 4						Grade 8					
	Nation-based			State-specific			Nation-based			State-specific		
	▼	=	▲	▼	=	▲	▼	=	▲	▼	=	▲
4 more inclusive	2	11	0	2	11	0	5	8	0	5	8	0
3	2	11	0	3	9	1	2	11	0	2	11	0
2	3	6	4	2	8	3	6	6	1	6	6	1
1 less inclusive	1	8	3	0	8	4	4	7	1	4	7	1
Overall	8	36	7	7	36	8	17	32	2	17	32	2

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 18. Number of states in each composite index score category by estimation approach based on NAEP grades 4 and 8 reading assessments: 2005 and 2007

Starting Quartile	Grade 4						Grade 8					
	Nation-based			State-specific			Nation-based			State-specific		
	▼	=	▲	▼	=	▲	▼	=	▲	▼	=	▲
4 more inclusive	8	5	0	4	9	0	7	6	0	4	9	0
3	6	7	0	3	10	0	7	6	0	4	9	0
2	4	8	1	4	6	3	6	6	1	4	8	1
1 less inclusive	0	5	7	1	4	7	1	8	3	2	7	3
Overall	18	25	8	12	29	10	21	26	4	14	33	4

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 19. States in each composite index score category by estimation approach based on NAEP grade 4 mathematics assessments: 2005 and 2007

Starting Quartile	Grade 4					
	Nation-based			State-specific		
	▼	=	▲	▼	=	▲
4 more inclusive	AR, ID	AL, AK, HI, IN, KS, NH, NM, UT, WA, WI, WY		ID, IN	AL, AK, AR, KS, NH, NM, SD, UT, WA, WI, WY	
3	IL, MO	CO, FL, GA, IA, MN, NE, NJ, NC, PA, SD, WV		GA, IL, MO	CO, FL, HI, MN, NE, NJ, NC, PA, WV	IA
2	ND, OK, TN	KY, LA, MA, ME, MT, RI	CT, NY, OR, VT	OK, TN	CT, KY, LA, ME, MA, MT, ND, RI	NY, OR, VT
1 less inclusive	MD	AZ, CA, DC, MI, NV, OH, TX, VA	DE, MS, SC		AZ, DC, MD, MI, NV, OH, TX, VA	CA, DE, MS, SC
Total	8	36	7	7	36	8

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 20. States in each composite index score category by estimation approach based on NAEP grade 8 mathematics assessments: 2005 and 2007

Starting Quartile	Grade 8					
	Nation-based			State-specific		
	▼	=	▲	▼	=	▲
4 more inclusive	AL, NE, NH, OR, WA	FL, ID, IA, MN, NM, SD, UT, WY		AL, IL, NE, OR, WA	FL, ID, IA, MN, NH, NM, UT, WY	
3	AK, IL	AR, CA, CO, HI, MT, NJ, NC, PA, RI, VT, WI		AK, MT	AR, CA, CO, HI, NJ, NC, PA, RI, SD, WV, WI	
2	DC, GA, IN, ND, OK, TN	KS, ME, MO, NV, NY, WV	CT	DC, GA, IN, ND, OK, TN	KS, ME, MO, NV, NY, VT	CT
1 less inclusive	KY, MD, MA, VA	AZ, LA, MI, MS, OH, SC, TX	DE	KY, MD, MA, VA	AZ, LA, MI, MS, OH, SC, TX	DE
Total	17	32	2	17	32	2

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p <$. 05).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table 21. States in each composite index score category by estimation approach based on NAEP grade 4 reading assessments: 2005 and 2007

Starting Quartile	Grade 4					
	Nation-based			State-specific		
	▼	=	▲	▼	=	▲
4 more inclusive	AL, KS, MN, NH, RI, WA, WI, WY	AK, CO, HI, NC, PA		AL, KS, MN, WY	AK, CO, CT, HI, NH, NC, RI, WA, WI	
3	DC, NJ, OK, SD, UT, VT	CT, FL, ID, IN, IA, NE, NY		NJ, OK, SD	CA, FL, ID, IN, IA, NE, NY, PA, UT, VT	
2	GA, MD, NM, ND	AZ, CA, IL, ME, MA, MT, NV, OR	WV	DC, GA, MD, ND	AZ, IL, MT, NV, NM, OR	ME, MA, WV
1 less inclusive		AR, KY, OH, TN, TX	DE, LA, MI, MS, MO, SC, VA	TX	AR, KY, OH, TN	DE, LA, MI, MS, MO, SC, VA
Total	18	25	8	12	29	10

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table 22. States in each composite index score category by estimation approach based on NAEP grade 8 reading assessments: 2005 and 2007

Starting Quartile	Grade 8					
	Nation-based			State-specific		
	▼	=	▲	▼	=	▲
4 more inclusive	AL, ID, MN, NE, NH, PA, SD	AK, HI, NC, OR, RI, WY		AL, MN, NH, SD	AK, HI, ID, NE, NC, OR, PA, RI, WY	
3	AZ, IA, KS, NJ, OK, VT, WA	CA, CO, CT, FL, IL, WI		KS, NJ, OK, VT	AZ, CA, CO, CT, FL, IL, IA, WA, WI	
2	AR, DC, GA, MD, NM, UT	IN, ME, MA, MT, NV, NY	WV	DC, GA, MD, NM	AR, IN, ME, MA, MT, NV, NY, UT	WV
1 less inclusive	ND	KY, MI, MS, OH, SC, TN, TX, VA	DE, LA, MO	ND, TX	KY, MI, MS, OH, SC, TN, VA	DE, LA, MO
Total	21	26	4	14	33	4

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

STATE-SPECIFIC RESULTS

Results for the state-specific approach are presented in tables 13 through 16.[26] Likelihood ratio tests were all significant at the .01 level indicating all models fit well, but pseudo R^2 statistics were low for a few states and high in others. Logit pseudo R^2 statistics ranges were .18 to .70 for mathematics grade 4, .13 to .60 for grade 8, .16 to .67 for reading grade 4, and .14 to .34 for reading grade 8. These mixed results indicate that the model may not explain a large amount of the variation in inclusion. The consequence for our analysis of poor fit is that the portion of the difference in actual inclusion rates across time explained by the controls will be smaller and the portion of the difference captured by our change measure will be larger. This will lead to larger magnitudes, negative and positive, in the change measure.

As shown in the first row of table 13, in 2005, Alabama included 89.6 percent of the state's SD students in 2005 and 88.3 percent in 2007. Alabama, as reported in the third column, had an inclusion rate that was 7.5 percentage points above the average of all states if all states had had the same characteristics as Alabama. This starting point measure was statistically different from zero at the 5 percent level. The fifth and sixth columns show Alabama's measure of change, –1.2, and its standard error, 2.62. This change was not statistically significant. Alabama had a starting point measure that placed it in the top quartile and a change score of 0; therefore, it had a composite index score of (4,0) as indicated in the last column.

The results in tables 13 through 16 generally follow patterns similar to those in tables 9 through 12, although there were slightly fewer statistically significant changes between 2005 and 2007 here. The numbers of states that were more inclusive of SDs in 2007 than in 2005 were again generally outnumbered by the numbers of states that were less inclusive:

- For grade 4 mathematics, 8 states were significantly more inclusive in 2007 than in 2005, and 7 states were less inclusive.
- For grade 8 mathematics, 2 states were significantly more inclusive, and 17 states were significantly less inclusive.
- For grade 4 reading, 10 states were significantly more inclusive, and 12 states were significantly less inclusive.
- For grade 8 reading, 4 states were significantly more inclusive, and 14 states were significantly less inclusive.

As in the nation-based analysis, states that were more inclusive in 2007 had starting point measures that placed them in the lowest two quartiles, as shown in tables 17 and 18. Many of the states that had negative significant change were located in upper quartiles but again were spread out among other quartiles. Tables 19 through 22 display the results with each state's abbreviation in the appropriate bin. As in tables 17 and 18, the rows in tables 19 through 22 indicate different starting points, and the columns indicate different directions of change. Upper rows are states with higher starting point indicating that they are relatively more inclusive. The left column signifies negative significant change, the right column signifies positive significant change, and the center column shows states with no significant change.

COMPARISON OF NATION-BASED AND STATE-SPECIFIC RESULTS

Looking at the raw change and starting point measures, the two approaches produce very similar results. The correlation between the nation-based and state-specific state-level change measures is greater than .95 for each subject and grade. The correlation between nation-based

26 Results for changes from 2003 to 2005 using the state-specific approach are in appendix tables B-5 through B-8.

and state-specific starting point measures is even higher at greater than .99 for each grade and subject.

Looking at the composite index scores, results for the two approaches are again generally the same but with some differences. When there are differences, they are most often due to differing statistical significance of the change measure. The nation-based approach finds more states becoming less inclusive, particularly in reading as shown in table 18, but they both find roughly the same number of states becoming more inclusive. Because the approaches for comparing the inclusion rates among states in the initial period are very similar, it is not surprising to find only a few discrepancies in the composite index score that are due to differences in the starting point quartile. As an example, comparing the results for mathematics grade 4 in table 9 for the nation-based approach and table 13 for the state-specific approach, 8 states differ in their composite index score because of differences in the significance of the change measure, but only 2 differ because of differences in the quartile of the index comparing states' inclusion rates.

SUMMARY

In response to concerns that rates of inclusion of students with disabilities on NAEP differ among states, we have developed two approaches using Oaxaca-Blinder decomposition techniques for measuring change in inclusion rates over time. These approaches measure change over time, holding constant both the proportion of students with different types and severities of disabilities and whether the student received an accommodation on the state assessment that is not allowed on NAEP. The approaches differ in how the student-level predicted probabilities are set. Under the nation-based approach, student-level predicted probabilities are set by a regression model that is estimated using observations from all states in the initial period. Under the state-specific approach, student-level predicted probabilities are set for each state separately using regression estimates for individual states in the initial period. For both approaches, we compare state inclusion rates in the initial period against each other to provide a *context* for the measured change. We expect states starting with higher relative inclusion rates to have less change than states starting out with lower relative inclusion rates. To make these two measures, one of the starting point and the other of change over time, easier to understand, a partition of the *starting point vs. change* space was introduced. The composite score index brings the partitions of these two measures together.

The measures developed in this study are limited by the validity of the variables used for identifying different types of students. To the extent that variables describing student characteristics are measured with error, our ability to control for changes in the distribution of students among these types is limited. Were we to have perfect measures, it is possible that we would see more captured by our controls and less captured in the change measure.

Between 2005 and 2007, in about one-third of the states there were significant changes in inclusion rates for the mathematics assessments, and in about one-half of the states there were significant changes in inclusion rates in the reading assessments. Overall, more states had, after adjusting for differences in SD populations, lower inclusion rates than higher inclusion rates of students with disabilities on NAEP in 2007 than 2005 except in grade 4 mathematics, where the numbers were about the same from 2005 to 2007. The nation-based approach identified more states as having a significant reduction in their inclusion rates than the state-specific approach did. Differences generally lay in differing significance levels of the estimated change measure. Differences in starting point quartile were relatively rare: in mathematics grade 4, two states switched quartiles; in mathematics grade 8, four states switched; in reading grade 4, four states switched; and in reading grade 8, zero states switched. Most states did not have statistically significant changes in their rate of inclusion. Most of the significant changes were in the direction of decreasing inclusion in 2007 compared with 2005. Those states that had increased their inclusion rates from 2005 to 2007 had relatively low initial inclusion rates in 2005.

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APPENDIX A. CALCULATION OF STANDARD ERRORS

Because of NAEP's complex sampling design, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. Instead, NAEP provides 62 jackknife weights for a replication procedure that is used to estimate standard errors. Replication methods involve using the weights to construct a number of subsamples, or replicates, from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variance of the statistic.

In this report, the statistic of interest—the change measure—is constructed by the application of regression results estimated using data from one NAEP administration to find predicted probabilities of inclusion for students with disabilities from a second NAEP administration. The standard errors we use in this report for statistical inference take into account error from two sources: (a) NAEP sampling error and (b) the regression estimates.

(a) Sampling error: Using one set of regression coefficients, we aggregate predicted probabilities for the 62 replicate samples.

First, we estimate the regression using initial-year data using NAEP sampling weights (ORIGWT). Using these regression results, we calculate predicted probabilities of inclusion for individual students with disabilities in the second-year data for the state-specific approach and for individual students with disabilities in the initial and second year for the nation-based approach. Then, we obtain the change measure by aggregating individual SD predicted probabilities to the state level using the sampling weights (ORIGWT). Finally, we estimate 62 replicate change measures by aggregating individual SD predicted probabilities to state level 62 times using their replicate weights (SRWT01 – SRWT62).

The error from sampling equals the square root of the sum of the 62 squared differences between the measures using each of the replicate weights and the measure using the sampling weight.

(b) Error from regression estimates: We obtain 62 sets of regression coefficients estimated using replicate sample and then aggregate the full sample for each of 62 sets of predicted probabilities.

First, we estimate the regression using initial-year data using NAEP sampling weights (ORIGWT). Then, we estimate the regression 62 times using initial-year data using the 62 NAEP replicate weights (SRWT01 – SRWT62). Using each of these regression results, we calculate predicted probabilities for individual SDs in second-year data for the state-specific approach, for individual SDs in the initial and second year in the nation-based approach. We obtain the change measure by aggregating individual SD sampling weight predicted probabilities to the state level using the sampling weights (ORIGWT). We obtain 62 replicate change measures by aggregating the 62 individual SD replicate-weight predicted probabilities to the state level using the sampling weights (ORIGWT).

The error from estimation equals the square root of the sum of the 62 squared differences between the measures using each of the replicate weights and the measure using the sampling weight.

The two sources of error, (a) and (b), are then combined to produce the standard error for our change measure: the square root of the sum of the squares of the two error sources. Significance of each statistic is tested using a simple *t*-test.

APPENDIX B. CHANGES INCLUSION RATES FROM 2003 TO 2005

Prior to, and in anticipation of, the release of the 2007 NAEP results, the methodology presented in this report was developed using 2003 and 2005 NAEP data. These data were used to examine changes in state-level inclusion rates from 2003 to 2005 with 2003 as the initial period and 2005 as the second period. Results are presented in the following tables B-1 to B-10.

Table B-1. Percentages of students with disabilities in NAEP grade 4 mathematics assessments, estimated using nation-based approach: By state, 2003 and 2005

State	Actual rates		Predicted rates		Diff. from predicted[1]		Change 2003–05	Standard error	Composite index[2]
	2003	2005	2003	2005	2003	2005			
Alabama	85.8	89.6	75.9	74.0	9.9	15.6	5.7	3.13	(4,0)
Alaska	93.8	93.7	82.2	81.0	11.6	12.7	1.1	2.64	(4,0)
Arizona	72.6	80.3	79.6	80.4	–7.0	–0.1	7.0	4.02	(1,0)
Arkansas	90.7	86.3	75.5	73.6	15.2	12.6	–2.5	2.86	(4,0)
California	81.8	81.0	81.1	80.9	0.7	0.1	–0.6	3.35	(2,0)
Colorado	85.7	83.7	78.8	76.3	7.0	7.4	0.5	3.02	(3,0)
Connecticut	76.8	87.9	81.2	82.8	–4.4	5.1	9.5*	3.59	(1,1)
Delaware	61.4	58.4	78.9	80.3	–17.5	–21.9	–4.4	3.01	(1,0)
District of Columbia	73.8	67.7	70.6	67.9	3.2	–0.2	–3.4	3.22	(2,0)
Florida	90.3	88.6	79.8	81.3	10.5	7.2	–3.3	2.78	(4,0)
Georgia	86.8	87.9	80.4	80.9	6.4	7.0	0.6	2.69	(3,0)
Hawaii	86.5	85.2	80.0	75.6	6.5	9.6	3.1	3.36	(3,0)
Idaho	92.6	92.2	78.8	77.0	13.8	15.2	1.4	2.43	(4,0)
Illinois	85.1	86.5	81.8	79.4	3.3	7.1	3.8	3.19	(2,0)
Indiana	87.4	91.7	83.9	85.3	3.4	6.5	3.0	3.11	(2,0)
Iowa	85.0	88.3	80.2	83.5	4.9	4.8	–0.1	2.88	(3,0)
Kansas	90.6	85.7	81.5	78.6	9.1	7.1	–2.0	2.66	(4,0)
Kentucky	79.0	83.7	74.5	77.6	4.5	6.0	1.6	3.87	(3,0)
Louisiana	86.0	83.8	81.1	85.0	4.9	–1.2	–6.1	4.86	(3,0)
Maine	83.1	83.0	79.1	78.4	4.0	4.6	0.5	3.10	(2,0)
Maryland	80.2	79.4	81.1	78.6	–1.0	0.8	1.7	3.87	(1,0)
Massachusetts	89.5	83.9	80.1	81.9	9.4	2.0	–7.5*	2.85	(4,–1)
Michigan	66.6	74.6	77.3	78.4	–10.7	–3.8	6.9	4.07	(1,0)
Minnesota	83.3	86.3	80.5	80.6	2.8	5.8	3.0	3.18	(2,0)
Mississippi	49.5	80.4	79.7	84.3	–30.2	–3.8	26.4*	4.06	(1,1)
Missouri	79.6	87.2	82.3	81.7	–2.6	5.5	8.1*	3.49	(1,1)
Montana	86.0	83.4	80.0	78.4	5.9	4.9	–1.0	3.59	(3,0)
Nebraska	87.5	88.7	83.8	84.0	3.7	4.8	1.1	2.66	(2,0)
Nevada	81.0	80.7	79.0	79.2	2.0	1.6	–0.4	4.32	(2,0)
New Hampshire	86.2	90.3	81.1	80.1	5.1	10.2	5.0	2.76	(3,0)
New Jersey	90.4	87.7	82.1	80.4	8.2	7.3	–1.0	4.14	(4,0)
New Mexico	90.1	89.3	77.5	78.5	12.5	10.8	–1.7	3.44	(4,0)
New York	82.1	83.7	82.2	78.5	0.0	5.2	5.2	4.34	(1,0)
North Carolina	79.1	87.5	77.7	80.9	1.4	6.6	5.2*	2.61	(2,1)
North Dakota	89.5	85.5	82.8	83.5	6.7	2.0	–4.7*	2.21	(3,–1)
Ohio	66.4	73.0	72.5	76.4	–6.1	–3.4	2.7	5.49	(1,0)
Oklahoma	82.5	78.8	78.8	75.8	3.7	3.0	–0.7	3.07	(2,0)
Oregon	81.7	78.7	80.2	78.3	1.6	0.4	–1.2	3.32	(2,0)
Pennsylvania	84.8	85.3	79.3	78.6	5.5	6.7	1.2	3.97	(3,0)
Rhode Island	93.1	87.9	82.3	83.2	10.8	4.7	–6.1*	2.70	(4,–1)
South Carolina	63.7	73.8	80.8	79.6	–17.1	–5.8	11.3*	3.39	(1,1)
South Dakota	91.0	91.0	83.5	85.4	7.5	5.6	–1.9	2.11	(4,0)
Tennessee	82.3	76.1	75.2	71.0	7.1	5.1	–2.0	4.26	(4,0)
Texas	52.6	65.2	76.0	77.6	–23.5	–12.5	11.0*	3.53	(1,1)
Utah	85.7	88.6	81.3	80.2	4.4	8.4	4.0	3.03	(3,0)
Vermont	78.2	80.4	75.8	75.3	2.4	5.1	2.7	2.79	(2,0)
Virginia	66.6	71.6	80.2	81.3	–13.6	–9.7	3.9	4.24	(1,0)
Washington	83.1	85.4	76.8	75.3	6.3	10.1	3.7	3.13	(3,0)
West Virginia	81.0	88.5	79.7	81.2	1.3	7.3	6.0	3.18	(2,0)
Wisconsin	80.3	88.3	76.1	78.7	4.2	9.6	5.4	3.21	(3,0)
Wyoming	92.7	91.8	83.1	80.1	9.6	11.7	2.1	2.35	(4,0)

* Significantly different from zero ($p < .05$).

Estimate rounds to zero.

[1] The 2003 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Mathematics Assessments.

Table B-2. Percentages of students with disabilities in NAEP grade 8 mathematics assessments, estimated using nation-based approach: By state, 2003 and 2005

State	Actual rates		Predicted rates		Diff. from predicted[1]		Change 2003–05	Standard error	Composite index[2]
	2003	2005	2003	2005	2003	2005			
Alabama	85.6	92.3	75.2	78.4	10.3	13.9	3.5	3.16	(4,0)
Alaska	93.3	84.2	80.5	79.9	12.8	4.3	–8.5 *	2.34	(4,–1)
Arizona	80.3	71.4	80.5	80.9	–0.2	–9.5	–9.3	5.13	(2,0)
Arkansas	90.7	80.2	75.3	74.6	15.5	5.6	–9.8 *	2.91	(4,–1)
California	89.6	84.4	80.0	79.4	9.7	5.0	–4.6	2.54	(4,0)
Colorado	89.7	83.9	79.7	77.8	10.0	6.0	–4.0	3.00	(4,0)
Connecticut	77.6	83.7	81.0	81.5	–3.4	2.3	5.7 *	2.55	(2,1)
Delaware	48.3	34.1	73.7	77.7	–25.5	–43.5	–18.1 *	3.51	(1,–1)
District of Columbia	68.8	71.2	71.6	71.7	–2.8	–0.5	2.4	3.39	(2,0)
Florida	88.1	85.6	78.4	80.4	9.6	5.2	–4.4	2.73	(4,0)
Georgia	86.9	82.0	79.5	80.3	7.4	1.7	–5.7	3.59	(3,0)
Hawaii	84.2	86.1	79.6	79.7	4.6	6.4	1.8	2.71	(2,0)
Idaho	95.7	86.3	81.6	76.9	14.1	9.4	–4.7	2.59	(4,0)
Illinois	77.3	83.7	77.5	79.7	–0.2	3.9	4.2	3.50	(2,0)
Indiana	84.1	76.5	80.0	82.3	4.2	–5.9	–10.0 *	3.45	(2,–1)
Iowa	85.7	83.8	80.3	80.2	5.4	3.6	–1.8	3.03	(3,0)
Kansas	84.0	76.6	78.7	78.3	5.3	–1.7	–7.0 *	3.56	(3,–1)
Kentucky	68.5	72.7	74.9	78.8	–6.3	–6.1	0.3	4.91	(1,0)
Louisiana	73.0	70.7	77.7	81.9	–4.7	–11.2	–6.5	5.73	(1,0)
Maine	77.7	75.2	78.3	76.9	–0.6	–1.7	–1.1	3.53	(2,0)
Maryland	75.8	67.2	79.9	79.3	–4.1	–12.1	–7.9	5.82	(1,0)
Massachusetts	88.1	68.6	80.6	81.6	7.6	–13.0	–20.6 *	4.11	(3,–1)
Michigan	67.6	69.4	76.5	78.0	–8.9	–8.6	0.4	4.65	(1,0)
Minnesota	86.0	85.5	80.8	78.1	5.2	7.4	2.2	2.99	(3,0)
Mississippi	46.7	68.6	79.3	81.8	–32.7	–13.2	19.5 *	5.50	(1,1)
Missouri	77.0	72.5	81.9	78.1	–4.9	–5.6	–0.7	4.34	(1,0)
Montana	85.8	84.2	78.2	79.6	7.5	4.6	–2.9	2.88	(3,0)
Nebraska	81.0	91.1	83.4	83.0	–2.4	8.1	10.5 *	2.58	(2,1)
Nevada	86.7	82.4	81.3	80.7	5.4	1.7	–3.7	3.20	(3,0)
New Hampshire	82.7	87.9	81.4	80.0	1.3	7.9	6.6 *	2.92	(2,1)
New Jersey	93.8	83.1	80.7	82.1	13.1	1.0	–12.1 *	3.20	(4,–1)
New Mexico	91.4	87.1	78.4	79.9	13.0	7.2	–5.8 *	2.68	(4,–1)
New York	75.9	81.2	80.7	81.6	–4.8	–0.4	4.4	4.23	(1,0)
North Carolina	81.0	85.8	78.3	79.4	2.6	6.5	3.9	3.40	(2,0)
North Dakota	90.0	74.0	78.6	79.3	11.4	–5.3	–16.6 *	2.92	(4,–1)
Ohio	61.3	59.9	71.1	74.4	–9.8	–14.4	–4.6	6.25	(1,0)
Oklahoma	87.2	76.5	80.9	77.3	6.3	–0.8	–7.1 *	3.26	(3,–1)
Oregon	83.0	82.1	77.5	76.4	5.5	5.8	0.2	3.14	(3,0)
Pennsylvania	91.0	80.8	80.3	78.8	10.6	2.0	–8.7 *	3.63	(4,–1)
Rhode Island	88.5	85.1	83.0	82.9	5.6	2.2	–3.4	2.31	(3,0)
South Carolina	53.2	59.2	76.4	80.0	–23.3	–20.7	2.6	4.87	(1,0)
South Dakota	85.3	82.9	78.2	77.7	7.2	5.1	–2.1	2.40	(3,0)
Tennessee	82.5	68.7	76.9	74.9	5.7	–6.1	–11.8 *	3.98	(3,–1)
Texas	59.1	61.0	77.3	80.0	–18.3	–19.0	–0.7	5.03	(1,0)
Utah	79.5	82.4	78.0	77.1	1.5	5.3	3.8	3.17	(2,0)
Vermont	84.1	79.2	79.1	77.7	5.0	1.4	–3.6	2.61	(2,0)
Virginia	62.6	70.9	79.7	82.5	–17.1	–11.6	5.5	4.30	(1,0)
Washington	87.3	83.0	77.0	76.8	10.3	6.2	–4.1	3.09	(4,0)
West Virginia	82.7	83.0	79.2	81.0	3.5	2.1	–1.5	3.16	(2,0)
Wisconsin	84.0	78.7	75.7	76.1	8.2	2.6	–5.6	3.32	(3,0)
Wyoming	94.4	89.4	79.4	81.1	15.0	8.2	–6.8 *	2.44	(4,–1)

* Significantly different from zero ($p < .05$).

[1] The 2003 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Mathematics Assessments.

Table B-3. Percentages of students with disabilities in NAEP grade 4 reading assessments, estimated using nation-based approach: By state, 2003 and 2005

State	Actual rates		Predicted rates		Diff. from predicted[1]		Change 2003–05	Standard error	Composite index[2]
	2003	2005	2003	2005	2003	2005			
Alabama	84.3	85.3	63.3	61.1	21.0	24.2	3.2	3.47	(4,0)
Alaska	86.6	84.5	68.7	66.3	17.9	18.2	0.3	3.72	(4,0)
Arizona	56.5	66.7	65.0	67.2	–8.5	–0.6	7.9	5.42	(1,0)
Arkansas	63.0	53.3	61.2	61.8	1.9	–8.6	–10.5 *	5.09	(2,–1)
California	74.7	74.9	70.7	71.8	4.0	3.1	–1.0	4.24	(3,0)
Colorado	82.9	78.6	65.2	64.0	17.7	14.7	–3.0	3.17	(4,0)
Connecticut	73.5	78.5	70.3	66.9	3.1	11.6	8.4 *	3.86	(3,1)
Delaware	35.5	28.6	67.2	66.5	–31.7	–37.9	–6.2 *	3.10	(1,–1)
District of Columbia	60.0	57.7	58.0	56.7	1.9	1.0	–1.0	3.60	(2,0)
Florida	83.6	76.0	67.9	71.5	15.8	4.5	–11.2 *	3.72	(4,–1)
Georgia	77.7	59.7	68.8	66.3	8.9	–6.6	–15.6 *	4.12	(3,–1)
Hawaii	76.6	82.5	64.6	64.3	11.9	18.2	6.3	3.86	(4,0)
Idaho	78.8	72.2	64.7	65.4	14.0	6.9	–7.2	4.44	(4,0)
Illinois	71.7	65.3	67.0	66.9	4.6	–1.6	–6.3	4.99	(3,0)
Indiana	72.6	75.2	69.3	71.8	3.3	3.4	0.1	4.86	(3,0)
Iowa	56.4	65.2	60.6	64.6	–4.2	0.6	4.7	5.61	(2,0)
Kansas	83.4	77.4	65.3	65.8	18.1	11.7	–6.4 *	3.15	(4,–1)
Kentucky	41.6	45.4	64.0	63.3	–22.4	–17.9	4.5	4.04	(1,0)
Louisiana	71.1	41.2	72.1	71.2	–1.0	–30.0	–29.1 *	5.54	(2,–1)
Maine	63.7	65.8	63.5	68.1	0.1	–2.3	–2.5	3.75	(2,0)
Maryland	57.0	63.3	68.0	68.9	–11.0	–5.6	5.5	4.06	(1,0)
Massachusetts	85.1	67.2	69.2	70.3	15.8	–3.0	–18.8 *	3.48	(4,–1)
Michigan	44.5	52.3	62.3	63.3	–17.9	–11.1	6.8	5.39	(1,0)
Minnesota	80.2	84.5	66.9	69.6	13.3	14.9	1.6	3.00	(4,0)
Mississippi	41.3	66.9	69.5	76.2	–28.1	–9.3	18.8 *	4.53	(1,1)
Missouri	55.5	55.8	69.0	68.2	–13.5	–12.5	1.0	4.17	(1,0)
Montana	65.3	61.1	64.3	62.1	1.0	–1.0	–2.0	4.70	(2,0)
Nebraska	78.0	75.2	73.0	74.4	5.0	0.8	–4.3	4.05	(3,0)
Nevada	66.2	60.4	63.4	65.0	2.8	–4.5	–7.3	5.00	(2,0)
New Hampshire	81.0	83.0	69.0	69.7	12.0	13.4	1.4	3.68	(4,0)
New Jersey	76.0	73.8	67.2	68.7	8.8	5.1	–3.7	5.67	(3,0)
New Mexico	78.2	64.4	67.7	64.9	10.5	–0.5	–11.0 *	5.14	(3,–1)
New York	63.3	74.5	70.0	67.7	–6.7	6.8	13.6 *	4.43	(1,1)
North Carolina	64.5	83.2	65.1	70.9	–0.6	12.4	13.0 *	3.88	(2,1)
North Dakota	76.7	64.7	74.2	71.5	2.4	–6.7	–9.1 *	3.61	(2,–1)
Ohio	53.9	40.8	59.8	59.8	–5.9	–18.9	–13.1 *	5.58	(2,–1)
Oklahoma	70.4	72.5	64.7	67.9	5.7	4.6	–1.1	4.14	(3,0)
Oregon	63.4	69.4	65.9	67.4	–2.5	2.0	4.5	3.74	(2,0)
Pennsylvania	79.1	73.3	65.1	66.7	14.0	6.5	–7.5	4.41	(4,0)
Rhode Island	85.5	88.0	69.4	71.3	16.1	16.7	0.6	3.14	(4,0)
South Carolina	56.0	61.1	70.2	71.2	–14.3	–10.1	4.1	3.58	(1,0)
South Dakota	72.6	71.4	70.6	68.9	1.9	2.5	0.6	3.05	(2,0)
Tennessee	71.8	38.4	66.8	58.4	5.0	–20.0	–25.0 *	5.59	(3,–1)
Texas	48.3	58.5	65.6	71.3	–17.2	–12.9	4.3	4.52	(1,0)
Utah	80.3	72.0	69.3	66.1	11.0	5.9	–5.1	3.27	(3,0)
Vermont	64.5	68.4	63.3	59.7	1.2	8.6	7.5 *	3.37	(2,1)
Virginia	44.3	36.8	67.7	67.5	–23.4	–30.8	–7.4	4.61	(1,0)
Washington	69.1	76.8	62.3	62.8	6.8	14.0	7.3	4.56	(3,0)
West Virginia	38.4	69.1	64.5	71.6	–26.1	–2.5	23.6 *	3.93	(1,1)
Wisconsin	68.7	71.7	62.3	63.4	6.3	8.3	1.9	4.52	(3,0)
Wyoming	88.8	90.4	66.7	68.4	22.1	22.1	0.0	2.74	(4,0)

* Significantly different from zero ($p < .05$).

[1] The 2003 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Reading Assessments.

Table B-4. Percentages of students with disabilities in NAEP grade 8 reading assessments, estimated using nation-based approach: By state, 2003 and 2005

State	Actual rates		Predicted rates		Diff. from predicted[1]		Change 2003–05	Standard error	Composite index[2]
	2003	2005	2003	2005	2003	2005			
Alabama	81.3	88.0	70.3	72.5	11.0	15.4	4.5	3.95	(4,0)
Alaska	86.3	88.0	71.2	74.0	15.0	14.0	–1.1	2.50	(4,0)
Arizona	65.8	73.3	67.4	70.6	–1.7	2.7	4.3	5.02	(2,0)
Arkansas	72.3	62.0	64.3	63.8	8.0	–1.8	–9.8	5.12	(3,0)
California	78.4	80.1	71.5	72.4	6.9	7.7	0.8	4.29	(3,0)
Colorado	84.0	76.7	68.9	69.7	15.1	7.1	–8.0	4.25	(4,0)
Connecticut	80.3	84.4	76.3	75.0	4.0	9.5	5.5	2.92	(2,0)
Delaware	47.5	33.3	65.6	68.2	–18.1	–34.9	–16.8 *	3.48	(1,–1)
District of Columbia	60.9	62.1	63.3	64.2	–2.4	–2.1	0.3	3.23	(2,0)
Florida	77.5	80.2	70.1	73.8	7.3	6.3	–1.0	3.97	(3,0)
Georgia	79.0	62.4	68.0	71.0	11.0	–8.6	–19.6 *	5.17	(4,–1)
Hawaii	79.1	82.4	72.5	71.8	6.5	10.5	4.0	2.64	(3,0)
Idaho	76.2	81.5	71.4	71.9	4.8	9.6	4.9	3.91	(2,0)
Illinois	73.4	72.4	68.7	73.1	4.6	–0.7	–5.3	4.42	(2,0)
Indiana	78.0	73.5	73.2	76.2	4.9	–2.8	–7.7	4.10	(3,0)
Iowa	71.4	75.9	70.0	74.0	1.4	2.0	0.6	4.43	(2,0)
Kansas	81.6	72.6	68.9	69.0	12.7	3.7	–9.1 *	3.84	(4,–1)
Kentucky	46.9	44.8	70.7	67.1	–23.8	–22.3	1.5	4.74	(1,0)
Louisiana	62.4	49.8	71.9	75.4	–9.6	–25.6	–16.0 *	5.86	(1,–1)
Maine	71.4	65.9	69.0	71.0	2.4	–5.2	–7.6 *	3.50	(2,–1)
Maryland	78.8	69.1	70.2	71.6	8.6	–2.5	–11.1 *	4.98	(3,–1)
Massachusetts	83.6	69.0	71.3	75.6	12.4	–6.7	–19.0 *	3.96	(4,–1)
Michigan	51.1	56.1	67.7	69.8	–16.6	–13.7	2.9	5.10	(1,0)
Minnesota	78.7	82.8	70.6	71.6	8.0	11.2	3.2	3.25	(3,0)
Mississippi	40.9	58.0	70.9	75.4	–30.0	–17.4	12.6 *	5.67	(1,1)
Missouri	51.2	49.5	71.1	69.7	–19.9	–20.2	–0.3	4.93	(1,0)
Montana	68.6	66.6	71.5	71.1	–2.9	–4.5	–1.6	3.73	(2,0)
Nebraska	76.0	77.2	77.1	73.1	–1.1	4.1	5.2	3.05	(2,0)
Nevada	84.1	74.7	71.9	72.9	12.2	1.8	–10.4 *	3.57	(4,–1)
New Hampshire	84.0	87.7	74.5	76.5	9.5	11.2	1.7	2.63	(3,0)
New Jersey	86.1	78.5	71.4	75.1	14.7	3.3	–11.4 *	4.09	(4,–1)
New Mexico	77.7	68.7	69.2	73.5	8.5	–4.8	–13.3 *	4.04	(3,–1)
New York	66.3	65.2	72.9	72.5	–6.6	–7.2	–0.6	4.80	(1,0)
North Carolina	63.0	80.9	69.8	72.7	–6.8	8.2	15.0 *	3.76	(1,1)
North Dakota	71.3	55.9	73.6	72.6	–2.2	–16.7	–14.5 *	3.61	(2,–1)
Ohio	56.1	50.8	60.3	68.6	–4.2	–17.8	–13.6 *	6.76	(2,–1)
Oklahoma	75.4	74.2	68.7	68.9	6.8	5.3	–1.5	4.63	(3,0)
Oregon	76.5	77.4	71.2	69.6	5.3	7.7	2.4	3.19	(3,0)
Pennsylvania	85.6	79.3	69.1	71.5	16.5	7.8	–8.7 *	4.09	(4,–1)
Rhode Island	85.9	84.6	75.8	76.4	10.1	8.2	–2.0	2.10	(4,0)
South Carolina	45.6	52.2	69.1	70.9	–23.5	–18.7	4.8	4.89	(1,0)
South Dakota	68.9	73.0	70.7	68.0	–1.7	5.0	6.8	3.68	(2,0)
Tennessee	81.5	43.4	71.5	64.9	10.1	–21.5	–31.5 *	4.48	(4,–1)
Texas	57.6	63.1	71.3	74.9	–13.7	–11.7	2.0	3.98	(1,0)
Utah	79.8	72.1	70.9	71.0	8.9	1.1	–7.8 *	3.86	(3,–1)
Vermont	75.9	77.5	69.3	72.0	6.6	5.4	–1.2	2.71	(3,0)
Virginia	47.2	54.9	69.6	73.7	–22.4	–18.8	3.7	4.35	(1,0)
Washington	79.6	72.5	68.1	67.3	11.5	5.2	–6.3	4.13	(4,0)
West Virginia	48.5	62.7	69.5	70.6	–21.1	–7.9	13.2 *	5.24	(1,1)
Wisconsin	69.5	68.3	66.0	69.2	3.5	–0.9	–4.5	4.73	(2,0)
Wyoming	85.4	81.6	73.2	73.8	12.2	7.8	–4.4	2.69	(4,0)

* Significantly different from zero ($p < .05$).

[1] The 2003 *difference from predicted* is also the *starting point* measure.

[2] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Reading Assessments.

Table B-5. Starting point and change measures for percentages of students with disabilities in NAEP grade 4 mathematics assessments from state-specific approach: By state, 2003 and 2005

State	Starting point measure—2003		2003–05 change		Composite index[1]
	Estimated	Std error	Change	Std error	
Alabama	7.7 *	2.14	2.3	3.12	(4,0)
Alaska	9.5 *	1.86	0.7	1.72	(4,0)
Arizona	–9.4 *	2.74	4.2	3.99	(1,0)
Arkansas	12.7 *	1.81	–3.2	2.87	(4,0)
California	–1.4	2.54	–2.2	3.13	(2,0)
Colorado	4.8 *	1.91	4.0	2.77	(3,0)
Connecticut	–6.9 *	3.04	5.8 *	2.79	(1,1)
Delaware	–19.7 *	1.95	–7.3 *	2.91	(1,–1)
District of Columbia	–0.1	2.19	–7.7 *	2.83	(2,–1)
Florida	8.4 *	1.70	–4.6 *	2.33	(4,–1)
Georgia	4.5 *	1.70	–0.3	4.53	(3,0)
Hawaii	4.2	2.56	0.9	4.69	(3,0)
Idaho	11.3 *	1.37	4.9 *	2.02	(4,1)
Illinois	1.4	2.58	0.7	3.19	(2,0)
Indiana	1.8	2.36	1.6	2.73	(2,0)
Iowa	2.7	2.12	0.8	2.24	(3,0)
Kansas	7.3 *	1.66	–7.3 *	3.61	(4,–1)
Kentucky	2.5	2.74	2.8	4.02	(3,0)
Louisiana	2.6	4.13	–3.0	4.33	(3,0)
Maine	1.6	2.11	1.4	2.94	(2,0)
Maryland	–3.1	2.99	0.1	3.70	(1,0)
Massachusetts	7.1 *	1.51	–6.5 *	2.63	(4,–1)
Michigan	–13.5 *	3.14	3.1	3.50	(1,0)
Minnesota	0.8	1.62	0.2	5.35	(2,0)
Mississippi	–33.3 *	3.27	17.9 *	3.52	(1,1)
Missouri	–4.5	2.33	9.6 *	3.45	(1,1)
Montana	3.4	1.96	6.1	8.46	(3,0)
Nebraska	2.1	1.80	–2.4	2.52	(2,0)
Nevada	–0.5	3.14	–1.3	4.24	(2,0)
New Hampshire	3.0	2.17	6.3 *	2.79	(3,1)
New Jersey	6.0	3.28	–0.7	4.19	(4,0)
New Mexico	9.9 *	2.19	3.4	4.97	(4,0)
New York	–2.3	3.62	4.8	4.46	(1,0)
North Carolina	–0.7	2.04	5.8	3.38	(2,0)
North Dakota	5.0 *	1.36	–5.7 *	2.58	(4,–1)
Ohio	–8.9 *	4.30	0.8	4.86	(1,0)
Oklahoma	1.3	2.21	–1.2	3.21	(2,0)
Oregon	–0.7	2.14	–1.3	3.30	(2,0)
Pennsylvania	3.5	2.56	–2.2	3.84	(3,0)
Rhode Island	8.7 *	1.26	–6.8 *	2.29	(4,–1)
South Carolina	–19.3 *	2.47	4.2	3.26	(1,0)
South Dakota	5.8 *	1.33	–1.3	1.56	(4,0)
Tennessee	4.3	2.77	–5.9	4.17	(3,0)
Texas	–26.8 *	2.90	2.3	3.22	(1,0)
Utah	2.4	2.39	2.4	2.90	(3,0)
Vermont	–0.1	1.68	9.1 *	2.96	(2,1)
Virginia	–15.8 *	3.09	0.9	3.85	(1,0)
Washington	3.8	2.15	2.8	3.79	(3,0)
West Virginia	–0.7	2.51	5.1	3.28	(2,0)
Wisconsin	2.1	2.03	–1.1	3.39	(3,0)
Wyoming	7.6 *	1.05	11.6 *	2.38	(4,1)

* Significantly different from zero ($p < .05$).

[1] The *composite index* (q,s) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, s, where s is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Mathematics Assessments.

Table B-6. Starting point and change measures for percentages of students with disabilities in NAEP grade 8 mathematics assessments from state-specific approach: By state, 2003 and 2005

State	Starting point measure—2003		2003–05 change		Composite index[1]
	Estimated	Std error	Change	Std error	
Alabama	8.1 *	2.46	8.6 *	3.41	(4,1)
Alaska	11.2 *	1.14	–8.2 *	3.83	(4,–1)
Arizona	–2.1	3.00	–10.7	5.69	(2,0)
Arkansas	13.2 *	1.68	–9.9 *	2.78	(4,–1)
California	8.0 *	1.66	–3.2	2.68	(4,0)
Colorado	8.4 *	1.79	–7.0 *	3.14	(4,–1)
Connecticut	–5.1 *	1.80	6.9 *	2.77	(2,1)
Delaware	–28.4 *	2.76	–15.2 *	3.38	(1,–1)
District of Columbia	–5.7 *	1.98	4.5	4.31	(2,0)
Florida	7.8 *	1.59	–2.5	2.69	(4,0)
Georgia	5.4 *	2.17	–6.9 *	2.89	(3,–1)
Hawaii	2.7	1.83	–0.5	2.44	(2,0)
Idaho	12.4 *	1.64	–3.0	5.90	(4,0)
Illinois	–2.3	2.47	3.6	3.61	(2,0)
Indiana	2.3	2.21	–5.5	4.03	(2,0)
Iowa	3.4	1.79	–0.5	2.84	(3,0)
Kansas	3.5	1.88	–5.9	3.41	(3,0)
Kentucky	–8.6 *	3.93	1.2	4.79	(1,0)
Louisiana	–7.0 *	3.44	–0.9	6.25	(1,0)
Maine	–2.5	2.48	–1.2	3.55	(2,0)
Maryland	–6.1	4.18	–7.5	5.67	(1,0)
Massachusetts	5.6 *	2.58	–16.4 *	4.60	(3,–1)
Michigan	–11.4 *	3.16	0.7	4.71	(1,0)
Minnesota	3.5	2.07	4.3	2.70	(3,0)
Mississippi	–34.9 *	3.85	7.8 *	3.74	(1,1)
Missouri	–6.6 *	2.86	–1.8	4.34	(1,0)
Montana	5.5 *	1.90	–2.1	2.63	(3,0)
Nebraska	–3.8	2.01	12.4 *	2.82	(2,1)
Nevada	3.6	1.87	–2.8	3.02	(3,0)
New Hampshire	–0.3	2.11	7.1	3.71	(2,0)
New Jersey	11.1 *	1.58	–12.4 *	2.96	(4,–1)
New Mexico	10.9 *	1.71	–3.2	3.14	(4,0)
New York	–6.7 *	3.20	6.2	4.27	(1,0)
North Carolina	0.7	2.55	2.0	2.81	(2,0)
North Dakota	9.5 *	1.62	–16.0 *	2.99	(4,–1)
Ohio	–12.5 *	4.78	–2.6	6.49	(1,0)
Oklahoma	4.4 *	2.02	–7.7 *	3.28	(3,–1)
Oregon	3.6	1.96	4.5	3.18	(3,0)
Pennsylvania	8.7 *	2.05	–8.4 *	3.57	(4,–1)
Rhode Island	4.0 *	1.38	0.3	2.46	(3,0)
South Carolina	–25.6 *	3.33	1.8	4.40	(1,0)
South Dakota	5.2 *	1.66	–0.7	2.41	(3,0)
Tennessee	3.3	2.19	–14.2 *	3.90	(3,–1)
Texas	–20.9 *	4.10	–1.7	4.29	(1,0)
Utah	–0.3	2.54	4.0	3.50	(2,0)
Vermont	3.3	1.76	1.2	3.29	(2,0)
Virginia	–19.1 *	2.80	4.4	4.42	(1,0)
Washington	8.1 *	1.97	–2.0	3.45	(4,0)
West Virginia	1.4	2.52	–0.4	3.08	(2,0)
Wisconsin	6.1 *	2.23	–2.9	3.05	(3,0)
Wyoming	13.1 *	0.97	–2.9	3.59	(4,0)

* Significantly different from zero ($p < .05$).

[1] The *composite index* (*q*,*s*) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, *s*, where *s* is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Mathematics Assessments.

Table B-7. Starting point and change measures for percentages of students with disabilities in NAEP grade 4 reading assessments from state-specific approach: By state, 2003 and 2005

State	Starting point measure—2003		2003–05 change		Composite index[1]
	Estimated	Std error	Change	Std error	
Alabama	19.7 *	2.70	2.6	3.61	(4,0)
Alaska	16.5 *	2.15	–4.1	3.04	(4,0)
Arizona	–10.2 *	4.41	6.6	6.11	(1,0)
Arkansas	0.1	3.69	–11.4 *	4.88	(2,–1)
California	2.7	3.50	–1.7	4.05	(3,0)
Colorado	16.5 *	1.62	–5.4	2.90	(4,0)
Connecticut	1.8	2.53	8.6 *	3.99	(3,1)
Delaware	–33.3 *	1.93	–7.3 *	3.04	(1,–1)
District of Columbia	0.2	2.40	–3.8	4.16	(2,0)
Florida	14.6 *	2.33	–9.4 *	3.69	(4,–1)
Georgia	7.5 *	2.37	–18.2 *	4.06	(3,–1)
Hawaii	10.4 *	2.61	7.0	3.99	(4,0)
Idaho	12.4 *	3.10	–6.2	4.98	(4,0)
Illinois	3.3	3.58	–6.1	5.16	(3,0)
Indiana	1.9	3.54	–1.4	4.48	(3,0)
Iowa	–6.0	4.17	6.3	4.78	(2,0)
Kansas	16.8 *	1.83	–4.7	3.57	(4,0)
Kentucky	–24.2 *	2.95	–0.5	4.14	(1,0)
Louisiana	–2.4	3.54	–30.4 *	5.02	(2,–1)
Maine	–1.4	2.56	0.5	3.24	(2,0)
Maryland	–12.5 *	2.97	2.8	3.95	(1,0)
Massachusetts	14.5 *	2.29	–18.4 *	3.67	(4,–1)
Michigan	–19.7 *	3.88	2.1	6.39	(1,0)
Minnesota	12.0 *	2.13	4.1	3.02	(4,0)
Mississippi	–29.6 *	3.22	14.9 *	4.32	(1,1)
Missouri	–14.8 *	3.08	–0.1	4.28	(1,0)
Montana	–0.5	3.36	–5.0	5.19	(2,0)
Nebraska	3.7	2.53	–7.4	4.16	(3,0)
Nevada	1.2	3.50	–7.5	4.70	(2,0)
New Hampshire	10.6 *	2.77	4.3	6.21	(4,0)
New Jersey	7.2	4.51	–1.8	5.58	(3,0)
New Mexico	9.2 *	2.93	–13.2 *	4.77	(3,–1)
New York	–8.3 *	3.43	14.6 *	4.44	(1,1)
North Carolina	–2.3	3.29	14.2 *	3.71	(2,1)
North Dakota	1.2	2.66	–9.2 *	4.61	(2,–1)
Ohio	–7.4	4.44	–16.9 *	4.92	(2,–1)
Oklahoma	4.3	3.21	–1.4	3.96	(3,0)
Oregon	–3.9	2.81	–0.1	3.66	(2,0)
Pennsylvania	12.5 *	3.03	–1.0	5.45	(4,0)
Rhode Island	14.7 *	2.11	–1.2	2.79	(4,0)
South Carolina	–15.7 *	2.22	–1.9	3.28	(1,0)
South Dakota	0.7	2.26	–4.2	2.92	(2,0)
Tennessee	3.5	3.05	–31.4 *	6.19	(3,–1)
Texas	–18.9 *	3.68	–1.6	4.40	(1,0)
Utah	9.6 *	2.09	–8.4 *	3.31	(3,–1)
Vermont	–0.5	2.42	6.4	3.26	(2,0)
Virginia	–24.8 *	3.40	–14.2 *	4.22	(1,–1)
Washington	5.1	3.27	7.5	4.47	(3,0)
West Virginia	–28.0 *	3.01	15.1 *	4.19	(1,1)
Wisconsin	4.8	2.86	2.8	5.58	(3,0)
Wyoming	20.8 *	1.73	1.1	1.77	(4,0)

* Significantly different from zero ($p < .05$).

[1] The *composite index* (q,s) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, s, where s is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Reading Assessments.

Table B-8. Starting point and change measures for percentages of students with disabilities in NAEP grade 8 reading assessments from state-specific approach: By state, 2003 and 2005

State	Starting point measure—2003		2003–05 change		Composite index[1]
	Estimated	Std error	Change	Std error	
Alabama	9.8 *	2.85	5.5	3.65	(4,0)
Alaska	14.2 *	1.90	2.3	2.04	(4,0)
Arizona	–2.8	3.99	9.6 *	4.54	(2,1)
Arkansas	6.3	3.32	–11.1 *	5.02	(3,–1)
California	6.1	3.82	4.1	4.67	(3,0)
Colorado	14.1 *	2.70	–0.5	4.58	(4,0)
Connecticut	3.1	1.99	6.2 *	3.08	(2,1)
Delaware	–19.4 *	2.08	–15.0 *	3.59	(1,–1)
District of Columbia	–3.7	2.22	0.4	3.63	(2,0)
Florida	6.3 *	3.19	1.8	3.77	(3,0)
Georgia	9.7 *	3.46	–16.0 *	5.01	(4,–1)
Hawaii	5.6 *	1.66	3.9	2.70	(3,0)
Idaho	3.8	2.83	7.8 *	3.73	(3,1)
Illinois	3.7	2.49	–2.7	4.44	(2,0)
Indiana	3.6	2.98	–2.1	4.50	(2,0)
Iowa	0.3	3.37	2.7	4.15	(2,0)
Kansas	11.6 *	2.05	–6.1	4.02	(4,0)
Kentucky	–25.5 *	3.41	–0.4	4.56	(1,0)
Louisiana	–11.0 *	4.20	–14.7 *	5.33	(1,–1)
Maine	1.2	2.15	–4.5	3.91	(2,0)
Maryland	7.7 *	3.45	–12.7 *	4.74	(3,–1)
Massachusetts	11.2 *	2.53	–15.3 *	3.89	(4,–1)
Michigan	–17.9 *	3.83	2.7	5.51	(1,0)
Minnesota	6.9 *	2.36	5.2	3.12	(3,0)
Mississippi	–31.0 *	3.67	12.6 *	5.99	(1,1)
Missouri	–21.2 *	3.16	1.9	4.82	(1,0)
Montana	–4.0	2.41	1.3	3.97	(2,0)
Nebraska	–2.4	2.05	9.1 *	3.27	(2,1)
Nevada	11.1 *	2.37	–8.7 *	2.93	(4,–1)
New Hampshire	8.6 *	2.03	5.1 *	2.27	(3,1)
New Jersey	14.0 *	2.58	–8.0 *	3.78	(4,–1)
New Mexico	7.8 *	2.63	–10.1 *	3.28	(3,–1)
New York	–7.7 *	3.64	0.2	4.98	(1,0)
North Carolina	–8.2 *	2.77	15.6 *	3.48	(1,1)
North Dakota	–3.7	2.47	–11.3 *	4.24	(2,–1)
Ohio	–6.0	5.27	–5.7	5.87	(2,0)
Oklahoma	5.8	3.37	–0.4	4.44	(3,0)
Oregon	4.3	2.34	4.8	3.49	(3,0)
Pennsylvania	15.5 *	2.84	–3.2	3.98	(4,0)
Rhode Island	9.3 *	1.41	–0.3	1.93	(4,0)
South Carolina	–25.0 *	3.04	2.1	4.68	(1,0)
South Dakota	–2.8	2.63	6.3	4.36	(2,0)
Tennessee	9.2 *	2.36	–34.3 *	4.68	(4,–1)
Texas	–15.0 *	3.27	2.9	3.33	(1,0)
Utah	8.1 *	2.36	–6.8	4.06	(3,0)
Vermont	5.5 *	1.64	5.0	2.80	(3,0)
Virginia	–24.1 *	3.38	2.3	4.06	(1,0)
Washington	10.6 *	2.92	–6.4	4.43	(4,0)
West Virginia	–22.6 *	4.03	14.9 *	5.27	(1,1)
Wisconsin	2.1	3.12	0.6	5.03	(2,0)
Wyoming	11.3 *	1.61	–0.6	2.79	(4,0)

* Significantly different from zero ($p < .05$).

[1] The *composite index* (q,s) is the quartile of the *starting point, q* (from 1, the lowest, to 4, the highest), and statistical significance of the *change* score, s, where s is –1 if the change is negative and statistically significant, 1 if positive and statistically significant, and 0 if changes are not statistically different from zero ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Reading Assessments.

Table B-9. Number of states in each composite index score category by estimation approach based on NAEP grades 4 and 8 mathematics assessments: 2003 and 2005

Starting Quartile	Grade 4						Grade 8					
	Nation-based			State-specific			Nation-based			State-specific		
	▼	=	▲	▼	=	▲	▼	=	▲	▼	=	▲
4 more inclusive	2	11	0	5	6	2	7	6	0	6	6	1
3	1	12	0	0	12	1	4	9	0	4	9	0
2	0	12	1	1	11	1	1	9	3	0	11	2
1 less inclusive	0	7	5	1	8	3	1	10	1	1	10	1
Overall	3	42	6	7	37	7	13	34	4	11	36	4

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Mathematics Assessments.

Table B-10. Number of states in each composite index score category by estimation approach based on NAEP grades 4 and 8 reading assessments: 2003 and 2005

Starting Quartile	Grade 4						Grade 8					
	Nation-based			State-specific			Nation-based			State-specific		
	▼	=	▲	▼	=	▲	▼	=	▲	▼	=	▲
4 more inclusive	3	10	0	2	11	0	7	6	0	5	8	0
3	3	9	1	4	8	1	3	10	0	3	8	2
2	4	7	2	4	8	1	3	10	0	1	9	3
1 less inclusive	1	8	3	2	7	3	2	7	3	2	7	3
Overall	11	34	6	12	34	5	15	33	3	11	32	8

▲ Measure of change is positive and statistically significant indicating higher inclusion rates ($p < .05$).

= Measure of change is not statistically significant ($p < .05$).

▼ Measure of change is negative and statistically significant indicating lower inclusion rates ($p < .05$).

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2003 and 2005 Reading Assessments.

APPENDIX C. RECENTERING MEASURES

State-level predicted inclusion rates and *distance above the predicted inclusion rate* measures are essentially based on average inclusion rates across the country.[1] Hence, under the procedures described in the methodology section, half the states will have positive *starting point* measures and half will have negative *starting point* measures. This applies to both the nation-based and state-specific approaches. Rather than report predicted inclusion rates and measures centered on the average, we explored for this report recentering all *distance above the predicted* measures and corresponding state-level predicted inclusion rates for presentation. Recentering involves adding a constant to all state-level predicted inclusion rates, and this corresponds to subtracting the same constant from all *distance above the predicted* measures. The motivation was a concern that predicted inclusion rates and *distance above the predicted* might be misinterpreted as normative and readers might interpret the results to say that states that are very inclusive should reduce their inclusion rates. Recentering would put almost all states below the predicted rate by increasing the predicted rate by a fixed amount for all states.

Recentering procedures were later abandoned because it was deemed to be an unnecessary precaution that not only confused readers but also detracted from the focus of the paper, which is the change analysis. The recentering had no effect on the change measure but was simply a means to provide an alternative presentation of the starting point measures. In this appendix we report on exploratory analysis on recentering results for presentation.

The constant that was chosen to use for recentering was the average of the five largest *distance above the predicted* measures in the initial period.[2] This average is used as an empirical reference point for rescaling state-level predicted inclusion rates and *distance above the predicted* measures. Although we focus on the average of the five largest *distance above the predicted* measures, it is possible to use a different constant to add to the predictions. We could also have use the 1 largest or, alternatively, the 10 largest *distance above the predicted* measures. Discussion below of the recentering method is based on using the 5 largest measures, but tables in this appendix present results for the 1 largest and 10 largest criteria as well.

The first step in recentering is to find the average of the 5 largest *distance above the predicted* measures:

$$Top5^0 = \frac{1}{5} \cdot \left(\sum_{s \in \{5 \text{ Maximum } DistAbovePredicted\}} DistAbovePredicted_s^0 \right)$$

Next, this constant is simply added to each state-level benchmark to recenter them.

$$RecenteredPredicted_s^0 = StateLevelPredicted_s^0 + Top5^0$$
$$RecenteredPredicted_s^1 = StateLevelPredicted_s^1 + Top5^0$$

1 The logistic regression using all observations from all states estimates the relationship between SD characteristics and the probability of inclusion. The resulting predicted probability for each combination of student characteristics is the student-type benchmark and equals the average probability of inclusion for students with those characteristics across the country. State-level benchmarks are aggregations of these averages weighted by the distribution of SD characteristics in the state.

2 Instead of the 5 largest scores, we could have instead used the top (1) largest score or the top 10 largest scores or some other similar variant of this.

Because the state-level predicted inclusion rates have been raised, the *distance above the predicted* measures corresponding to these new predictions are lowered by that same constant.

$$\begin{aligned} RecenteredDistance_s^y &= Included_s^y - RecenteredPredicted_s^y \\ &= Included_s^y - \left(StateLevelPredicted_s^y + Top5^0\right) \\ &= DistAbovePredicted_s^y - Top5^0 \end{aligned}$$

Through substitution, we confirm that the recentered *distance above the predicted* inclusion rate is simply the *distance above the predicted* minus the average of the five largest initial-period states *distance above the predicted* measures.

It is important to reiterate that this recentering does not change the relative position of states in the *starting point* measure. We have simply subtracted a constant from all the *distance above the predicted* measures; hence, the percentage-point difference between and ranking of states will be unaffected. Similarly, the change measure is not affected in any way by the recentering: it is the same whether we use *distance above the predicted* or *recentered distance above the predicted* measures. This is confirmed by the equations below, which show that the change measure in the nation-based approach is equivalent using the unadjusted or recentered *distance above the benchmark* measures.

$$\begin{aligned} &RecenteredDistance_s^1 - RecenteredDistance_s^0 \\ &= \left(DistAbovePredicted_s^1 - Top5^0\right) - \left(DistAbovePredicted_s^0 - Top5^0\right) \\ &= \left(DistAbovePredicted_s^1 - DistAbovePredicted_s^0\right) - \left(Top5^0 - Top5^0\right) \\ &= DistAbovePredicted_s^1 - DistAbovePredicted_s^0 \end{aligned}$$

Table C-1. Benchmark percentages of students with disabilities in NAEP grade 4 mathematics assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	79.7	83.0	91.4	94.7	89.3	92.6	88.2	91.5
Alaska	84.1	81.5	95.8	93.2	93.7	91.1	92.6	90.0
Arizona	82.7	82.0	94.4	93.7	92.4	91.6	91.2	90.5
Arkansas	78.1	77.8	89.7	89.5	87.7	87.4	86.5	86.3
California	83.6	83.1	95.3	94.8	93.2	92.8	92.1	91.6
Colorado	79.2	79.9	90.9	91.5	88.9	89.5	87.7	88.3
Connecticut	86.0	82.5	97.6	94.2	95.6	92.1	94.4	91.0
Delaware	80.1	78.2	91.8	89.9	89.8	87.8	88.6	86.7
District of Columbia	71.7	75.1	83.3	86.8	81.3	84.7	80.1	83.6
Florida	83.9	85.3	95.6	97.0	93.6	94.9	92.4	93.8
Georgia	84.1	83.5	95.8	95.2	93.7	93.1	92.6	92.0
Hawaii	79.5	81.0	91.2	92.6	89.2	90.6	88.0	89.4
Idaho	80.5	80.7	92.2	92.3	90.2	90.3	89.0	89.1
Illinois	81.9	83.1	93.5	94.8	91.5	92.8	90.3	91.6
Indiana	86.1	85.1	97.8	96.7	95.8	94.7	94.6	93.5
Iowa	85.0	82.9	96.7	94.6	94.7	92.6	93.5	91.4
Kansas	80.3	79.1	92.0	90.8	89.9	88.8	88.8	87.6
Kentucky	80.4	83.6	92.1	95.3	90.1	93.2	88.9	92.1
Louisiana	84.7	84.1	96.4	95.8	94.3	93.7	93.2	92.6
Maine	81.0	81.2	92.7	92.9	90.6	90.8	89.5	89.7
Maryland	81.7	81.3	93.4	93.0	91.4	90.9	90.2	89.8
Massachusetts	83.9	80.7	95.6	92.4	93.5	90.3	92.4	89.2
Michigan	78.4	81.2	90.1	92.9	88.0	90.8	86.9	89.7
Minnesota	82.4	80.9	94.1	92.6	92.0	90.5	90.9	89.4
Mississippi	87.1	87.4	98.8	99.1	96.7	97.1	95.6	95.9
Missouri	82.7	81.4	94.4	93.1	92.4	91.0	91.2	89.9
Montana	80.6	77.3	92.3	89.0	90.3	86.9	89.1	85.8
Nebraska	85.1	85.2	96.8	96.9	94.8	94.9	93.6	93.7
Nevada	83.3	82.3	95.0	94.0	93.0	92.0	91.8	90.8
New Hampshire	82.0	82.3	93.7	94.0	91.6	92.0	90.5	90.8
New Jersey	83.9	82.5	95.6	94.2	93.6	92.1	92.4	91.0
New Mexico	81.9	80.2	93.6	91.9	91.6	89.9	90.4	88.7
New York	83.2	85.2	94.9	96.9	92.8	94.8	91.7	93.7
North Carolina	83.7	84.6	95.4	96.2	93.3	94.2	92.2	93.0
North Dakota	84.9	81.9	96.6	93.6	94.5	91.6	93.4	90.4
Ohio	78.9	77.3	90.6	89.0	88.6	87.0	87.4	85.8
Oklahoma	78.5	79.9	90.2	91.6	88.1	89.6	87.0	88.4
Oregon	80.0	80.3	91.7	92.0	89.6	89.9	88.5	88.8
Pennsylvania	80.5	81.5	92.2	93.2	90.2	91.1	89.0	89.9
Rhode Island	84.6	84.0	96.3	95.7	94.3	93.6	93.1	92.5
South Carolina	83.4	85.7	95.1	97.4	93.0	95.3	91.9	94.2
South Dakota	86.1	85.2	97.8	96.9	95.7	94.9	94.6	93.7
Tennessee	73.3	73.3	85.0	85.0	82.9	82.9	81.8	81.8
Texas	82.5	82.8	94.1	94.4	92.1	92.4	90.9	91.2
Utah	81.8	82.0	93.5	93.7	91.4	91.7	90.3	90.5
Vermont	79.1	78.2	90.8	89.9	88.7	87.8	87.6	86.7
Virginia	82.4	82.8	94.1	94.4	92.0	92.4	90.9	91.2
Washington	78.1	80.5	89.8	92.2	87.7	90.1	86.6	89.0
West Virginia	84.3	87.4	96.0	99.1	94.0	97.0	92.8	95.9
Wisconsin	81.3	82.7	93.0	94.4	91.0	92.4	89.8	91.2
Wyoming	83.2	81.1	94.9	92.8	92.9	90.7	91.7	89.6

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table C-2. Benchmark percentages of students with disabilities in NAEP grade 8 mathematics assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	78.9	76.7	92.3	90.1	89.6	87.3	88.6	86.3
Alaska	78.0	72.3	91.4	85.7	88.7	83.0	87.7	82.0
Arizona	77.5	78.2	90.9	91.7	88.2	88.9	87.2	87.9
Arkansas	74.0	76.1	87.4	89.5	84.6	86.8	83.6	85.8
California	78.6	81.4	92.0	94.8	89.3	92.1	88.3	91.1
Colorado	77.6	77.6	91.0	91.0	88.3	88.3	87.3	87.3
Connecticut	80.9	81.3	94.3	94.7	91.6	91.9	90.6	90.9
Delaware	71.2	72.2	84.7	85.6	81.9	82.9	80.9	81.9
District of Columbia	70.5	69.9	83.9	83.3	81.1	80.6	80.1	79.6
Florida	78.6	80.8	92.0	94.2	89.2	91.5	88.2	90.5
Georgia	79.5	79.6	92.9	93.0	90.2	90.3	89.2	89.3
Hawaii	79.2	79.5	92.6	92.9	89.9	90.2	88.9	89.2
Idaho	76.2	76.8	89.6	90.2	86.9	87.5	85.9	86.5
Illinois	76.7	74.3	90.1	87.7	87.4	85.0	86.4	84.0
Indiana	77.3	77.5	90.7	90.9	88.0	88.2	87.0	87.2
Iowa	76.7	80.6	90.1	94.1	87.4	91.3	86.4	90.3
Kansas	73.4	72.1	86.8	85.5	84.0	82.8	83.0	81.8
Kentucky	76.0	72.7	89.4	86.1	86.7	83.4	85.7	82.4
Louisiana	75.1	74.9	88.5	88.3	85.8	85.6	84.8	84.6
Maine	73.7	77.0	87.1	90.4	84.4	87.7	83.4	86.7
Maryland	74.1	73.2	87.5	86.6	84.8	83.9	83.8	82.8
Massachusetts	76.3	73.2	89.7	86.6	87.0	83.9	86.0	82.9
Michigan	75.3	74.1	88.7	87.5	86.0	84.8	85.0	83.8
Minnesota	76.4	76.3	89.8	89.7	87.1	87.0	86.1	86.0
Mississippi	80.8	83.0	94.2	96.4	91.5	93.6	90.5	92.6
Missouri	73.0	73.2	86.4	86.6	83.7	83.9	82.7	82.9
Montana	77.8	74.8	91.2	88.2	88.4	85.5	87.4	84.5
Nebraska	81.3	81.9	94.7	95.3	92.0	92.6	91.0	91.6
Nevada	80.6	76.9	94.1	90.3	91.3	87.6	90.3	86.6
New Hampshire	78.4	80.0	91.8	93.4	89.0	90.6	88.0	89.6
New Jersey	79.5	78.5	92.9	91.9	90.2	89.2	89.2	88.2
New Mexico	78.2	76.3	91.6	89.7	88.9	87.0	87.9	86.0
New York	79.9	80.9	93.3	94.4	90.6	91.6	89.6	90.6
North Carolina	79.5	82.8	92.9	96.2	90.2	93.5	89.2	92.5
North Dakota	75.2	75.3	88.6	88.7	85.9	85.9	84.9	84.9
Ohio	70.8	67.6	84.3	81.0	81.5	78.2	80.5	77.2
Oklahoma	73.4	73.7	86.8	87.1	84.1	84.4	83.1	83.4
Oregon	73.6	76.4	87.1	89.8	84.3	87.1	83.3	86.1
Pennsylvania	75.9	78.0	89.3	91.4	86.6	88.7	85.6	87.7
Rhode Island	81.0	82.4	94.4	95.8	91.7	93.1	90.7	92.1
South Carolina	78.8	79.6	92.2	93.0	89.5	90.3	88.5	89.3
South Dakota	75.7	75.4	89.1	88.8	86.4	86.1	85.3	85.1
Tennessee	71.3	71.0	84.7	84.4	82.0	81.7	81.0	80.7
Texas	78.3	78.6	91.8	92.0	89.0	89.3	88.0	88.3
Utah	74.2	74.6	87.6	88.0	84.9	85.3	83.9	84.3
Vermont	75.8	74.3	89.2	87.7	86.5	85.0	85.5	84.0
Virginia	79.5	78.5	92.9	91.9	90.2	89.1	89.2	88.1
Washington	74.3	74.0	87.7	87.4	85.0	84.7	84.0	83.7
West Virginia	80.0	83.0	93.4	96.4	90.7	93.6	89.7	92.6
Wisconsin	72.1	74.2	85.5	87.6	82.8	84.9	81.8	83.9
Wyoming	78.8	79.4	92.2	92.8	89.5	90.0	88.5	89.0

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table C-3. Benchmark percentages of students with disabilities in NAEP grade 4 reading assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	65.3	71.6	88.0	94.2	84.1	90.4	81.9	88.1
Alaska	66.3	69.2	89.0	91.8	85.1	88.0	82.8	85.7
Arizona	66.2	70.7	88.8	93.4	85.0	89.5	82.7	87.2
Arkansas	60.0	67.2	82.6	89.9	78.8	86.0	76.5	83.7
California	71.8	73.7	94.5	96.4	90.6	92.5	88.3	90.3
Colorado	64.0	69.3	86.7	92.0	82.8	88.1	80.5	85.8
Connecticut	69.4	72.8	92.1	95.5	88.2	91.6	85.9	89.4
Delaware	59.3	58.5	81.9	81.1	78.1	77.3	75.8	75.0
District of Columbia	54.1	57.2	76.8	79.9	72.9	76.0	70.7	73.8
Florida	71.2	75.7	93.8	98.3	90.0	94.5	87.7	92.2
Georgia	62.9	65.9	85.6	88.5	81.7	84.7	79.5	82.4
Hawaii	68.5	68.8	91.2	91.5	87.3	87.6	85.1	85.3
Idaho	64.1	69.5	86.7	92.2	82.9	88.3	80.6	86.1
Illinois	64.4	70.9	87.0	93.6	83.2	89.7	80.9	87.4
Indiana	67.6	72.6	90.3	95.3	86.4	91.4	84.2	89.2
Iowa	60.2	65.9	82.8	88.5	79.0	84.7	76.7	82.4
Kansas	62.2	70.4	84.8	93.0	81.0	89.2	78.7	86.9
Kentucky	58.8	66.3	81.5	88.9	77.6	85.1	75.4	82.8
Louisiana	64.9	70.7	87.6	93.4	83.7	89.5	81.4	87.3
Maine	66.0	67.8	88.6	90.5	84.8	86.6	82.5	84.3
Maryland	67.3	66.4	89.9	89.1	86.1	85.2	83.8	83.0
Massachusetts	67.1	67.5	89.7	90.2	85.9	86.3	83.6	84.1
Michigan	61.9	67.6	84.6	90.2	80.7	86.4	78.5	84.1
Minnesota	70.6	72.9	93.3	95.6	89.4	91.7	87.2	89.5
Mississippi	74.5	76.6	97.2	99.3	93.3	95.4	91.1	93.2
Missouri	63.2	73.2	85.8	95.9	82.0	92.0	79.7	89.8
Montana	59.0	63.6	81.6	86.3	77.8	82.4	75.5	80.2
Nebraska	70.5	72.1	93.2	94.8	89.3	91.0	87.0	88.7
Nevada	64.2	69.2	86.9	91.9	83.0	88.0	80.7	85.7
New Hampshire	68.4	72.7	91.1	95.4	87.2	91.6	85.0	89.3
New Jersey	64.7	66.8	87.4	89.5	83.6	85.6	81.3	83.4
New Mexico	64.2	69.5	86.8	92.1	83.0	88.3	80.7	86.0
New York	68.8	71.1	91.4	93.7	87.6	89.9	85.3	87.6
North Carolina	69.1	74.0	91.7	96.7	87.9	92.8	85.6	90.6
North Dakota	67.1	65.7	89.8	88.3	85.9	84.5	83.6	82.2
Ohio	54.4	61.1	77.1	83.7	73.2	79.9	70.9	77.6
Oklahoma	63.9	67.6	86.6	90.3	82.7	86.4	80.4	84.2
Oregon	67.0	69.2	89.7	91.9	85.8	88.0	83.6	85.7
Pennsylvania	63.5	68.9	86.2	91.6	82.3	87.8	80.1	85.5
Rhode Island	70.1	72.8	92.8	95.5	89.0	91.6	86.7	89.3
South Carolina	70.0	72.5	92.7	95.2	88.8	91.3	86.5	89.1
South Dakota	65.1	71.1	87.8	93.8	83.9	89.9	81.6	87.7
Tennessee	53.6	58.7	76.2	81.4	72.4	77.5	70.1	75.2
Texas	72.7	71.3	95.3	93.9	91.5	90.1	89.2	87.8
Utah	66.0	68.5	88.6	91.2	84.8	87.3	82.5	85.0
Vermont	59.7	64.3	82.4	87.0	78.5	83.1	76.3	80.8
Virginia	59.7	70.0	82.4	92.7	78.5	88.8	76.2	86.6
Washington	63.3	68.5	86.0	91.2	82.1	87.3	79.9	85.1
West Virginia	69.4	74.7	92.0	97.3	88.2	93.5	85.9	91.2
Wisconsin	61.5	70.1	84.1	92.8	80.3	88.9	78.0	86.7
Wyoming	67.8	68.4	90.4	91.0	86.6	87.2	84.3	84.9

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table C-4. Benchmark percentages of students with disabilities in NAEP grade 8 reading assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	72.7	74.0	88.0	89.3	86.1	87.5	84.6	85.9
Alaska	72.8	72.5	88.0	87.8	86.2	86.0	84.6	84.4
Arizona	67.9	73.3	83.1	88.6	81.3	86.8	79.7	85.2
Arkansas	60.8	71.8	76.0	87.1	74.2	85.3	72.6	83.7
California	71.5	77.1	86.7	92.4	84.9	90.6	83.3	89.0
Colorado	68.3	74.9	83.6	90.2	81.8	88.4	80.2	86.8
Connecticut	75.4	75.7	90.6	90.9	88.8	89.1	87.2	87.5
Delaware	62.0	64.4	77.3	79.7	75.4	77.9	73.8	76.3
District of Columbia	62.6	59.6	77.9	74.9	76.0	73.1	74.5	71.5
Florida	72.3	77.9	87.6	93.2	85.7	91.4	84.2	89.8
Georgia	69.2	69.7	84.4	85.0	82.6	83.2	81.0	81.6
Hawaii	72.8	74.2	88.0	89.4	86.2	87.6	84.6	86.0
Idaho	70.4	74.9	85.7	90.2	83.9	88.4	82.3	86.8
Illinois	66.9	70.3	82.2	85.6	80.3	83.8	78.7	82.2
Indiana	70.4	72.4	85.7	87.7	83.9	85.9	82.3	84.3
Iowa	69.6	73.0	84.8	88.3	83.0	86.5	81.4	84.9
Kansas	64.3	71.6	79.6	86.9	77.7	85.1	76.1	83.5
Kentucky	60.7	63.5	76.0	78.8	74.2	77.0	72.6	75.4
Louisiana	67.0	74.5	82.3	89.8	80.5	88.0	78.9	86.4
Maine	67.3	72.0	82.5	87.2	80.7	85.4	79.1	83.8
Maryland	66.2	67.2	81.5	82.5	79.7	80.6	78.1	79.0
Massachusetts	70.3	71.9	85.6	87.1	83.7	85.3	82.2	83.7
Michigan	65.7	71.3	81.0	86.5	79.2	84.7	77.6	83.1
Minnesota	71.0	73.4	86.3	88.6	84.5	86.8	82.9	85.2
Mississippi	74.1	75.9	89.4	91.2	87.6	89.4	86.0	87.8
Missouri	62.7	73.8	77.9	89.0	76.1	87.2	74.5	85.6
Montana	66.4	71.5	81.7	86.8	79.9	85.0	78.3	83.4
Nebraska	67.5	74.7	82.8	90.0	80.9	88.2	79.4	86.6
Nevada	71.6	70.6	86.9	85.9	85.0	84.1	83.4	82.5
New Hampshire	73.8	76.8	89.1	92.1	87.3	90.2	85.7	88.7
New Jersey	72.6	71.7	87.8	87.0	86.0	85.1	84.4	83.6
New Mexico	70.5	73.0	85.8	88.2	84.0	86.4	82.4	84.8
New York	69.4	74.8	84.6	90.1	82.8	88.2	81.2	86.6
North Carolina	71.1	76.9	86.4	92.2	84.6	90.4	83.0	88.8
North Dakota	65.5	68.2	80.8	83.4	78.9	81.6	77.3	80.0
Ohio	63.9	63.1	79.2	78.3	77.4	76.5	75.8	74.9
Oklahoma	65.9	71.2	81.1	86.4	79.3	84.6	77.7	83.0
Oregon	68.0	70.7	83.2	86.0	81.4	84.2	79.8	82.6
Pennsylvania	69.0	73.8	84.2	89.0	82.4	87.2	80.8	85.6
Rhode Island	74.0	78.3	89.2	93.5	87.4	91.7	85.8	90.1
South Carolina	68.7	72.2	83.9	87.5	82.1	85.6	80.5	84.0
South Dakota	62.7	70.3	78.0	85.5	76.2	83.7	74.6	82.1
Tennessee	60.1	62.8	75.4	78.1	73.6	76.3	72.0	74.7
Texas	73.7	72.8	89.0	88.0	87.2	86.2	85.6	84.6
Utah	67.6	67.6	82.9	82.9	81.1	81.1	79.5	79.5
Vermont	69.3	73.9	84.5	89.2	82.7	87.4	81.1	85.8
Virginia	69.6	73.3	84.8	88.5	83.0	86.7	81.4	85.1
Washington	65.6	71.8	80.9	87.1	79.0	85.3	77.4	83.7
West Virginia	67.1	74.9	82.4	90.2	80.6	88.4	79.0	86.8
Wisconsin	63.6	66.4	78.9	81.7	77.1	79.9	75.5	78.3
Wyoming	71.3	68.9	86.6	84.2	84.8	82.4	83.2	80.8

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table C-5. Distance above benchmark rate of students with disabilities in NAEP grade 4 mathematics assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	9.9	5.4	–1.8	–6.3	0.3	–4.3	1.4	–3.1
Alaska	9.7	9.8	–2.0	–1.8	0.0	0.2	1.2	1.4
Arizona	–2.4	1.4	–14.1	–10.2	–12.0	–8.2	–10.9	–7.0
Arkansas	8.2	2.0	–3.5	–9.7	–1.4	–7.6	–0.3	–6.5
California	–2.6	0.8	–14.2	–10.9	–12.2	–8.9	–11.0	–7.7
Colorado	4.5	8.3	–7.2	–3.3	–5.1	–1.3	–4.0	–0.1
Connecticut	1.9	7.2	–9.8	–4.5	–7.7	–2.5	–6.6	–1.3
Delaware	–21.8	–5.1	–33.5	–16.7	–31.4	–14.7	–30.3	–13.5
District of Columbia	–3.9	–8.8	–15.6	–20.5	–13.6	–18.4	–12.4	–17.3
Florida	4.6	3.0	–7.1	–8.7	–5.0	–6.6	–3.9	–5.5
Georgia	3.8	0.0	–7.9	–11.7	–5.9	–9.6	–4.7	–8.5
Hawaii	5.7	9.5	–6.0	–2.1	–3.9	–0.1	–2.8	1.1
Idaho	11.7	5.7	0.0	–6.0	2.0	–4.0	3.2	–2.8
Illinois	4.6	–5.5	–7.1	–17.2	–5.0	–15.2	–3.8	–14.0
Indiana	5.6	0.6	–6.1	–11.1	–4.0	–9.0	–2.9	–7.9
Iowa	3.3	7.1	–8.4	–4.6	–6.4	–2.6	–5.2	–1.4
Kansas	5.5	–0.2	–6.2	–11.9	–4.2	–9.8	–3.0	–8.7
Kentucky	3.3	0.6	–8.4	–11.1	–6.4	–9.0	–5.2	–7.9
Louisiana	–0.9	3.7	–12.6	–8.0	–10.5	–5.9	–9.4	–4.8
Maine	2.0	2.5	–9.7	–9.2	–7.7	–7.2	–6.5	–6.0
Maryland	–2.3	–8.6	–14.0	–20.3	–12.0	–18.2	–10.8	–17.1
Massachusetts	0.0	–6.3	–11.7	–18.0	–9.7	–16.0	–8.5	–14.8
Michigan	–3.8	–5.1	–15.5	–16.8	–13.4	–14.7	–12.3	–13.6
Minnesota	4.0	5.0	–7.7	–6.7	–5.7	–4.6	–4.5	–3.5
Mississippi	–6.6	4.9	–18.3	–6.8	–16.3	–4.8	–15.1	–3.6
Missouri	4.5	–4.8	–7.2	–16.5	–5.2	–14.4	–4.0	–13.3
Montana	2.7	4.4	–8.9	–7.3	–6.9	–5.2	–5.7	–4.1
Nebraska	3.6	0.5	–8.1	–11.2	–6.0	–9.2	–4.9	–8.0
Nevada	–2.6	2.1	–14.3	–9.5	–12.2	–7.5	–11.1	–6.3
New Hampshire	8.3	6.4	–3.4	–5.3	–1.3	–3.2	–0.2	–2.1
New Jersey	3.8	5.5	–7.9	–6.2	–5.8	–4.2	–4.7	–3.0
New Mexico	7.4	3.0	–4.3	–8.7	–2.3	–6.7	–1.1	–5.5
New York	0.5	6.0	–11.2	–5.7	–9.1	–3.7	–8.0	–2.5
North Carolina	3.8	5.1	–7.9	–6.6	–5.8	–4.5	–4.7	–3.4
North Dakota	0.6	–5.6	–11.1	–17.3	–9.0	–15.3	–7.9	–14.1
Ohio	–5.9	–5.8	–17.6	–17.5	–15.5	–15.4	–14.4	–14.3
Oklahoma	0.3	–12.1	–11.4	–23.8	–9.3	–21.8	–8.2	–20.6
Oregon	–1.3	5.5	–13.0	–6.1	–10.9	–4.1	–9.8	–2.9
Pennsylvania	4.8	4.6	–6.9	–7.1	–4.9	–5.0	–3.7	–3.9
Rhode Island	3.3	7.0	–8.4	–4.7	–6.4	–2.7	–5.2	–1.5
South Carolina	–9.6	2.4	–21.3	–9.2	–19.3	–7.2	–18.1	–6.0
South Dakota	4.9	7.0	–6.8	–4.7	–4.7	–2.7	–3.6	–1.5
Tennessee	2.8	–13.9	–8.9	–25.6	–6.8	–23.5	–5.7	–22.4
Texas	–17.3	–19.9	–29.0	–31.6	–26.9	–29.6	–25.8	–28.4
Utah	6.8	2.4	–4.9	–9.3	–2.8	–7.3	–1.7	–6.1
Vermont	1.3	8.2	–10.4	–3.5	–8.3	–1.5	–7.2	–0.3
Virginia	–10.8	–8.7	–22.5	–20.4	–20.5	–18.3	–19.3	–17.2
Washington	7.3	5.3	–4.4	–6.4	–2.4	–4.4	–1.2	–3.2
West Virginia	4.1	4.2	–7.5	–7.5	–5.5	–5.4	–4.3	–4.3
Wisconsin	7.0	2.8	–4.7	–8.9	–2.6	–6.9	–1.5	–5.7
Wyoming	8.6	8.6	–3.1	–3.1	–1.1	–1.1	0.1	0.1

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table C-6. Distance above benchmark rate of students with disabilities in NAEP grade 8 mathematics assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	13.4	0.1	0.0	–13.3	2.7	–10.5	3.7	–9.5
Alaska	6.2	–9.2	–7.2	–22.6	–4.5	–19.9	–3.5	–18.9
Arizona	–6.1	–2.9	–19.5	–16.3	–16.8	–13.6	–15.8	–12.6
Arkansas	6.3	5.6	–7.1	–7.8	–4.4	–5.1	–3.4	–4.1
California	5.9	1.6	–7.6	–11.8	–4.8	–9.1	–3.8	–8.1
Colorado	6.3	9.6	–7.1	–3.8	–4.4	–1.1	–3.4	–0.1
Connecticut	2.9	9.4	–10.5	–4.0	–7.8	–1.2	–6.8	–0.2
Delaware	–37.1	–15.1	–50.5	–28.5	–47.8	–25.8	–46.8	–24.8
District of Columbia	0.7	–24.2	–12.7	–37.6	–9.9	–34.9	–8.9	–33.9
Florida	7.0	2.7	–6.4	–10.7	–3.7	–8.0	–2.7	–7.0
Georgia	2.5	–29.4	–10.9	–42.8	–8.2	–40.1	–7.2	–39.1
Hawaii	6.9	11.3	–6.5	–2.1	–3.8	0.7	–2.8	1.7
Idaho	10.1	9.7	–3.4	–3.7	–0.6	–1.0	0.4	0.1
Illinois	6.9	–8.7	–6.5	–22.1	–3.7	–19.4	–2.7	–18.4
Indiana	–0.8	–13.7	–14.2	–27.1	–11.5	–24.4	–10.5	–23.4
Iowa	7.1	3.6	–6.3	–9.8	–3.6	–7.1	–2.6	–6.1
Kansas	3.3	–2.6	–10.1	–16.0	–7.4	–13.3	–6.4	–12.3
Kentucky	–3.3	–21.1	–16.7	–34.5	–13.9	–31.8	–12.9	–30.8
Louisiana	–4.4	–0.8	–17.8	–14.2	–15.1	–11.5	–14.1	–10.5
Maine	1.4	–5.1	–12.0	–18.5	–9.2	–15.8	–8.2	–14.7
Maryland	–6.9	–34.9	–20.3	–48.3	–17.6	–45.5	–16.6	–44.5
Massachusetts	–7.7	–23.8	–21.1	–37.2	–18.4	–34.4	–17.4	–33.4
Michigan	–5.9	–4.9	–19.3	–18.3	–16.6	–15.6	–15.6	–14.6
Minnesota	9.1	7.1	–4.3	–6.3	–1.6	–3.5	–0.6	–2.5
Mississippi	–12.3	–4.5	–25.7	–17.9	–22.9	–15.2	–21.9	–14.2
Missouri	–0.5	–7.8	–13.9	–21.2	–11.2	–18.5	–10.2	–17.5
Montana	6.5	2.5	–7.0	–10.9	–4.2	–8.2	–3.2	–7.2
Nebraska	9.8	1.0	–3.6	–12.4	–0.9	–9.6	0.1	–8.6
Nevada	1.7	–3.1	–11.7	–16.5	–9.0	–13.8	–8.0	–12.8
New Hampshire	9.6	3.3	–3.8	–10.1	–1.1	–7.3	–0.1	–6.3
New Jersey	3.6	4.2	–9.8	–9.2	–7.1	–6.5	–6.1	–5.5
New Mexico	8.9	7.2	–4.5	–6.2	–1.8	–3.5	–0.8	–2.5
New York	1.3	–1.7	–12.1	–15.1	–9.3	–12.4	–8.3	–11.3
North Carolina	6.3	3.9	–7.1	–9.5	–4.4	–6.8	–3.4	–5.8
North Dakota	–1.2	–17.1	–14.6	–30.6	–11.8	–27.8	–10.8	–26.8
Ohio	–10.9	–14.0	–24.3	–27.4	–21.6	–24.6	–20.6	–23.6
Oklahoma	3.1	–28.8	–10.3	–42.2	–7.6	–39.5	–6.6	–38.5
Oregon	8.5	1.6	–4.9	–11.8	–2.2	–9.1	–1.2	–8.0
Pennsylvania	4.9	–0.1	–8.5	–13.5	–5.8	–10.8	–4.8	–9.8
Rhode Island	4.1	5.6	–9.3	–7.8	–6.6	–5.1	–5.6	–4.1
South Carolina	–19.5	–19.4	–32.9	–32.8	–30.2	–30.1	–29.2	–29.1
South Dakota	7.2	2.9	–6.2	–10.5	–3.5	–7.8	–2.5	–6.8
Tennessee	–2.6	–24.0	–16.0	–37.4	–13.3	–34.7	–12.3	–33.7
Texas	–17.3	–20.1	–30.7	–33.5	–28.0	–30.8	–27.0	–29.8
Utah	8.2	2.5	–5.2	–10.9	–2.5	–8.2	–1.5	–7.1
Vermont	3.3	3.7	–10.1	–9.7	–7.4	–7.0	–6.3	–6.0
Virginia	–8.6	–19.6	–22.0	–33.0	–19.2	–30.3	–18.2	–29.3
Washington	8.7	–0.9	–4.7	–14.3	–2.0	–11.6	–1.0	–10.6
West Virginia	3.0	5.9	–10.4	–7.5	–7.7	–4.8	–6.7	–3.8
Wisconsin	6.6	–0.5	–6.8	–14.0	–4.1	–11.2	–3.1	–10.2
Wyoming	10.6	5.3	–2.8	–8.1	–0.1	–5.3	0.9	–4.3

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Mathematics Assessments.

Table C-7. Distance above benchmark rate of students with disabilities in NAEP grade 4 reading assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	20.0	6.6	–2.6	–16.1	1.2	–12.2	3.5	–10.0
Alaska	18.2	11.7	–4.5	–11.0	–0.6	–7.1	1.7	–4.9
Arizona	0.5	4.1	–22.2	–18.5	–18.3	–14.7	–16.0	–12.4
Arkansas	–6.7	–12.2	–29.4	–34.9	–25.5	–31.0	–23.2	–28.7
California	3.1	3.6	–19.5	–19.1	–15.7	–15.2	–13.4	–12.9
Colorado	14.7	10.6	–8.0	–12.0	–4.1	–8.2	–1.9	–5.9
Connecticut	9.0	12.2	–13.6	–10.4	–9.8	–6.6	–7.5	–4.3
Delaware	–30.7	–12.4	–53.4	–35.1	–49.5	–31.2	–47.3	–29.0
District of Columbia	3.6	–28.6	–19.1	–51.3	–15.2	–47.4	–12.9	–45.2
Florida	4.8	1.7	–17.8	–21.0	–14.0	–17.1	–11.7	–14.9
Georgia	–3.3	–22.5	–25.9	–45.2	–22.1	–41.3	–19.8	–39.0
Hawaii	14.0	8.4	–8.7	–14.3	–4.8	–10.5	–2.5	–8.2
Idaho	8.2	7.6	–14.5	–15.0	–10.6	–11.2	–8.4	–8.9
Illinois	1.0	–3.3	–21.7	–26.0	–17.9	–22.2	–15.6	–19.9
Indiana	7.6	5.0	–15.1	–17.7	–11.2	–13.8	–8.9	–11.6
Iowa	5.0	5.3	–17.7	–17.3	–13.8	–13.5	–11.5	–11.2
Kansas	15.3	–8.0	–7.4	–30.6	–3.5	–26.8	–1.2	–24.5
Kentucky	–13.4	–13.1	–36.1	–35.8	–32.2	–31.9	–30.0	–29.7
Louisiana	–23.7	8.6	–46.4	–14.1	–42.5	–10.2	–40.3	–8.0
Maine	–0.2	1.7	–22.9	–21.0	–19.0	–17.2	–16.7	–14.9
Maryland	–3.9	–15.0	–26.6	–37.7	–22.7	–33.8	–20.5	–31.5
Massachusetts	0.2	4.5	–22.5	–18.1	–18.6	–14.3	–16.3	–12.0
Michigan	–9.7	0.6	–32.3	–22.0	–28.5	–18.2	–26.2	–15.9
Minnesota	13.9	4.1	–8.8	–18.5	–4.9	–14.7	–2.6	–12.4
Mississippi	–7.6	1.0	–30.3	–21.7	–26.4	–17.8	–24.1	–15.5
Missouri	–7.4	5.6	–30.1	–17.0	–26.2	–13.2	–24.0	–10.9
Montana	2.1	1.1	–20.5	–21.5	–16.7	–17.7	–14.4	–15.4
Nebraska	4.7	0.0	–18.0	–22.7	–14.2	–18.8	–11.9	–16.6
Nevada	–3.8	1.0	–26.4	–21.7	–22.6	–17.8	–20.3	–15.6
New Hampshire	14.6	7.0	–8.1	–15.6	–4.2	–11.8	–1.9	–9.5
New Jersey	9.0	–5.1	–13.6	–27.8	–9.8	–23.9	–7.5	–21.7
New Mexico	0.2	–15.2	–22.5	–37.9	–18.6	–34.0	–16.3	–31.8
New York	5.7	1.4	–16.9	–21.2	–13.1	–17.4	–10.8	–15.1
North Carolina	14.2	13.6	–8.5	–9.1	–4.6	–5.2	–2.4	–2.9
North Dakota	–2.4	–19.5	–25.0	–42.2	–21.2	–38.3	–18.9	–36.1
Ohio	–13.5	–10.4	–36.2	–33.1	–32.4	–29.2	–30.1	–26.9
Oklahoma	8.6	–8.9	–14.1	–31.5	–10.2	–27.7	–7.9	–25.4
Oregon	2.3	5.1	–20.3	–17.6	–16.5	–13.7	–14.2	–11.5
Pennsylvania	9.7	3.1	–12.9	–19.6	–9.1	–15.7	–6.8	–13.4
Rhode Island	17.9	10.1	–4.8	–12.6	–0.9	–8.7	1.3	–6.4
South Carolina	–8.9	1.2	–31.6	–21.4	–27.7	–17.6	–25.5	–15.3
South Dakota	6.3	–4.9	–16.4	–27.6	–12.5	–23.7	–10.2	–21.5
Tennessee	–15.2	–21.7	–37.9	–44.4	–34.0	–40.5	–31.7	–38.2
Texas	–14.2	–19.6	–36.9	–42.2	–33.0	–38.4	–30.7	–36.1
Utah	6.0	–5.7	–16.7	–28.3	–12.8	–24.5	–10.5	–22.2
Vermont	8.6	2.7	–14.0	–20.0	–10.2	–16.1	–7.9	–13.9
Virginia	–22.9	–14.5	–45.6	–37.2	–41.7	–33.3	–39.5	–31.1
Washington	13.5	4.0	–9.1	–18.7	–5.3	–14.8	–3.0	–12.5
West Virginia	–0.3	16.4	–22.9	–6.3	–19.1	–2.4	–16.8	–0.2
Wisconsin	10.2	2.3	–12.5	–20.4	–8.6	–16.5	–6.3	–14.2
Wyoming	22.7	10.3	0.0	–12.4	3.9	–8.6	6.1	–6.3

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table C-8. Distance above benchmark rate of students with disabilities in NAEP grade 8 reading assessments, estimated using nation-based approach and recentered to the top 1, 5, and 10 states: By state, 2005 and 2007

	Unadjusted		Top 1		Top 5		Top 10	
State	2005	2007	2005	2007	2005	2007	2005	2007
Alabama	15.3	0.2	0.0	–15.1	1.8	–13.3	3.4	–11.7
Alaska	15.2	11.6	–0.1	–3.7	1.8	–1.8	3.3	–0.2
Arizona	5.5	–6.0	–9.8	–21.3	–8.0	–19.5	–6.4	–17.9
Arkansas	1.2	–9.7	–14.0	–25.0	–12.2	–23.2	–10.6	–21.6
California	8.7	3.2	–6.6	–12.0	–4.8	–10.2	–3.2	–8.6
Colorado	8.4	3.2	–6.8	–12.1	–5.0	–10.3	–3.4	–8.7
Connecticut	9.1	11.3	–6.2	–3.9	–4.4	–2.1	–2.8	–0.5
Delaware	–28.7	–1.8	–44.0	–17.1	–42.1	–15.3	–40.5	–13.7
District of Columbia	–0.5	–26.1	–15.8	–41.4	–14.0	–39.5	–12.4	–37.9
Florida	7.9	5.5	–7.4	–9.7	–5.6	–7.9	–4.0	–6.3
Georgia	–6.8	–24.8	–22.0	–40.0	–20.2	–38.2	–18.6	–36.6
Hawaii	9.6	13.4	–5.7	–1.8	–3.8	0.0	–2.2	1.6
Idaho	11.1	0.0	–4.2	–15.3	–2.4	–13.4	–0.8	–11.9
Illinois	5.6	2.1	–9.7	–13.2	–7.9	–11.3	–6.3	–9.7
Indiana	3.1	–1.5	–12.2	–16.8	–10.4	–14.9	–8.8	–13.3
Iowa	6.4	–1.3	–8.9	–16.6	–7.1	–14.8	–5.5	–13.2
Kansas	8.4	–5.8	–6.9	–21.0	–5.1	–19.2	–3.5	–17.6
Kentucky	–15.9	–21.1	–31.2	–36.3	–29.3	–34.5	–27.8	–32.9
Louisiana	–17.2	5.6	–32.5	–9.7	–30.7	–7.9	–29.1	–6.3
Maine	–1.4	–4.1	–16.7	–19.4	–14.8	–17.6	–13.2	–16.0
Maryland	2.8	–19.4	–12.4	–34.7	–10.6	–32.8	–9.0	–31.2
Massachusetts	–1.3	–3.2	–16.6	–18.4	–14.8	–16.6	–13.2	–15.0
Michigan	–9.7	–7.8	–25.0	–23.1	–23.1	–21.3	–21.5	–19.7
Minnesota	11.8	–0.2	–3.5	–15.4	–1.6	–13.6	–0.1	–12.0
Mississippi	–16.1	–12.7	–31.4	–27.9	–29.6	–26.1	–28.0	–24.5
Missouri	–13.2	2.4	–28.4	–12.9	–26.6	–11.1	–25.0	–9.5
Montana	0.2	–2.3	–15.1	–17.6	–13.3	–15.7	–11.7	–14.2
Nebraska	9.7	–0.9	–5.6	–16.2	–3.7	–14.4	–2.1	–12.8
Nevada	3.1	–1.1	–12.2	–16.4	–10.4	–14.6	–8.8	–13.0
New Hampshire	13.9	3.9	–1.4	–11.3	0.5	–9.5	2.1	–7.9
New Jersey	5.9	–7.0	–9.4	–22.3	–7.6	–20.5	–6.0	–18.9
New Mexico	–1.8	–12.5	–17.1	–27.7	–15.3	–25.9	–13.7	–24.3
New York	–4.1	–8.0	–19.4	–23.2	–17.6	–21.4	–16.0	–19.8
North Carolina	9.8	6.3	–5.5	–9.0	–3.7	–7.2	–2.1	–5.6
North Dakota	–9.6	–29.4	–24.8	–44.7	–23.0	–42.9	–21.4	–41.3
Ohio	–13.1	–12.2	–28.4	–27.4	–26.6	–25.6	–25.0	–24.0
Oklahoma	8.4	–11.8	–6.9	–27.1	–5.1	–25.3	–3.5	–23.7
Oregon	9.4	10.8	–5.9	–4.4	–4.0	–2.6	–2.4	–1.0
Pennsylvania	10.3	0.1	–4.9	–15.2	–3.1	–13.4	–1.5	–11.8
Rhode Island	10.6	7.0	–4.7	–8.2	–2.8	–6.4	–1.3	–4.8
South Carolina	–16.5	–15.0	–31.8	–30.3	–29.9	–28.5	–28.3	–26.9
South Dakota	10.3	–19.6	–5.0	–34.9	–3.2	–33.1	–1.6	–31.5
Tennessee	–16.7	–22.1	–32.0	–37.4	–30.2	–35.6	–28.6	–34.0
Texas	–10.6	–16.1	–25.8	–31.4	–24.0	–29.6	–22.4	–28.0
Utah	4.5	–6.4	–10.8	–21.7	–9.0	–19.9	–7.4	–18.3
Vermont	8.2	–0.2	–7.1	–15.5	–5.2	–13.6	–3.7	–12.0
Virginia	–14.7	–17.4	–29.9	–32.6	–28.1	–30.8	–26.5	–29.2
Washington	7.0	–4.3	–8.3	–19.6	–6.5	–17.8	–4.9	–16.2
West Virginia	–4.4	11.7	–19.6	–3.5	–17.8	–1.7	–16.2	–0.1
Wisconsin	4.7	–3.5	–10.6	–18.8	–8.8	–17.0	–7.2	–15.4
Wyoming	10.3	7.8	–5.0	–7.5	–3.1	–5.6	–1.5	–4.0

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 and 2007 Reading Assessments.

Table C-9. Distance above benchmark rate of students with disabilities in NAEP grade 4 and 8 mathematics assessments, estimated using state-specific approach and recentered to the top 1, 5, and 10 states: By state, 2005

State	Grade 4				Grade 8			
	Distance above benchmark	Centered on			Distance above benchmark	Centered on		
		Top 1	Top 5	Top 10		Top 1	Top 5	Top 10
Alabama	7.5	–2.3	–0.3	1.0	11.9	0.0	2.5	3.6
Alaska	8.0	–1.8	0.2	1.5	4.3	–7.6	–5.2	–4.0
Arizona	–4.2	–14.1	–12.1	–10.8	–7.7	–19.6	–17.2	–16.0
Arkansas	5.7	–4.2	–2.1	–0.9	4.4	–7.5	–5.1	–3.9
California	–4.4	–14.3	–12.2	–11.0	4.6	–7.3	–4.9	–3.7
Colorado	2.8	–7.1	–5.0	–3.7	5.0	–6.9	–4.4	–3.3
Connecticut	0.2	–9.7	–7.6	–6.4	1.6	–10.3	–7.8	–6.7
Delaware	–23.5	–33.3	–31.3	–30.0	–39.8	–51.7	–49.3	–48.2
District of Columbia	–7.3	–17.2	–15.1	–13.9	–1.4	–13.3	–10.9	–9.7
Florida	3.1	–6.8	–4.7	–3.5	5.9	–6.0	–3.5	–2.4
Georgia	2.3	–7.6	–5.5	–4.3	1.2	–10.7	–8.3	–7.1
Hawaii	3.1	–6.8	–4.7	–3.5	5.6	–6.3	–3.8	–2.7
Idaho	9.9	0.0	2.1	3.3	9.0	–3.0	–0.5	0.6
Illinois	3.4	–6.5	–4.4	–3.2	5.8	–6.1	–3.6	–2.5
Indiana	4.9	–4.9	–2.9	–1.6	–1.9	–13.8	–11.4	–10.2
Iowa	2.4	–7.5	–5.4	–4.2	6.0	–5.9	–3.5	–2.3
Kansas	4.1	–5.7	–3.7	–2.4	1.7	–10.2	–7.7	–6.6
Kentucky	1.4	–8.5	–6.4	–5.1	–5.4	–17.3	–14.8	–13.7
Louisiana	–1.8	–11.6	–9.6	–8.3	–6.0	–17.9	–15.4	–14.3
Maine	–0.2	–10.1	–8.1	–6.8	–0.5	–12.5	–10.0	–8.9
Maryland	–4.4	–14.3	–12.2	–11.0	–9.1	–21.0	–18.5	–17.4
Massachusetts	–1.7	–11.6	–9.5	–8.3	–9.3	–21.2	–18.7	–17.6
Michigan	–5.9	–15.8	–13.7	–12.5	–8.2	–20.1	–17.6	–16.5
Minnesota	2.6	–7.3	–5.2	–3.9	7.8	–4.1	–1.6	–0.5
Mississippi	–8.1	–17.9	–15.9	–14.6	–13.5	–25.4	–23.0	–21.8
Missouri	2.6	–7.2	–5.2	–3.9	–2.6	–14.5	–12.0	–10.9
Montana	1.1	–8.8	–6.7	–5.4	4.9	–7.0	–4.6	–3.4
Nebraska	2.8	–7.1	–5.0	–3.7	8.9	–3.0	–0.5	0.6
Nevada	–4.8	–14.6	–12.6	–11.3	0.5	–11.4	–9.0	–7.8
New Hampshire	6.4	–3.4	–1.4	–0.1	8.1	–3.8	–1.3	–0.2
New Jersey	1.9	–8.0	–5.9	–4.7	1.9	–10.0	–7.5	–6.4
New Mexico	5.3	–4.6	–2.5	–1.3	7.5	–4.4	–1.9	–0.8
New York	–1.9	–11.8	–9.7	–8.5	0.0	–11.9	–9.4	–8.3
North Carolina	2.4	–7.5	–5.4	–4.2	4.7	–7.2	–4.7	–3.6
North Dakota	–0.9	–10.8	–8.7	–7.5	–2.9	–14.8	–12.3	–11.2
Ohio	–7.9	–17.7	–15.7	–14.4	–13.2	–25.1	–22.6	–21.5
Oklahoma	–1.6	–11.4	–9.4	–8.1	1.0	–10.9	–8.5	–7.3
Oregon	–3.1	–12.9	–10.9	–9.6	7.4	–4.5	–2.0	–0.9
Pennsylvania	3.2	–6.7	–4.6	–3.3	3.2	–8.7	–6.2	–5.1
Rhode Island	1.9	–8.0	–6.0	–4.7	3.1	–8.8	–6.3	–5.2
South Carolina	–10.9	–20.8	–18.7	–17.4	–20.8	–32.7	–30.3	–29.1
South Dakota	3.9	–5.9	–3.9	–2.6	5.8	–6.1	–3.6	–2.5
Tennessee	0.7	–9.2	–7.1	–5.9	–4.6	–16.6	–14.1	–13.0
Texas	–19.3	–29.1	–27.1	–25.8	–18.6	–30.5	–28.0	–26.9
Utah	5.2	–4.7	–2.6	–1.4	6.2	–5.7	–3.2	–2.1
Vermont	–1.0	–10.9	–8.8	–7.5	1.8	–10.1	–7.7	–6.5
Virginia	–12.4	–22.3	–20.2	–19.0	–10.2	–22.1	–19.7	–18.5
Washington	5.1	–4.8	–2.8	–1.5	6.9	–5.0	–2.6	–1.4
West Virginia	3.0	–6.9	–4.8	–3.6	2.0	–9.9	–7.5	–6.3
Wisconsin	5.2	–4.7	–2.6	–1.3	5.0	–6.9	–4.5	–3.3
Wyoming	7.2	–2.7	–0.7	0.6	9.3	–2.6	–0.1	1.0

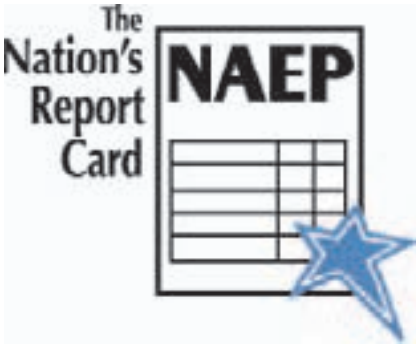
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 Mathematics Assessments.

Table C-10. Distance above benchmark rate of students with disabilities in NAEP grade 4 and 8 reading assessments, estimated using state-specific approach and recentered to the top 1, 5, and 10 states: By state, 2005

State	Grade 4				Grade 8			
	Distance above benchmark	Centered on			Distance above benchmark	Centered on		
		Top 1	Top 5	Top 10		Top 1	Top 5	Top 10
Alabama	18.8	–2.3	1.7	3.9	14.4	0.0	1.9	3.6
Alaska	16.4	–4.6	–0.7	1.6	14.4	0.0	2.0	3.6
Arizona	–1.5	–22.6	–18.6	–16.4	4.4	–10.0	–8.1	–6.4
Arkansas	–9.5	–30.6	–26.6	–24.4	–1.1	–15.4	–13.5	–11.8
California	1.4	–19.7	–15.7	–13.4	7.6	–6.8	–4.8	–3.2
Colorado	12.9	–8.2	–4.2	–1.9	7.0	–7.4	–5.4	–3.8
Connecticut	7.7	–13.4	–9.4	–7.2	8.1	–6.3	–4.3	–2.7
Delaware	–34.0	–55.1	–51.1	–48.8	–31.4	–45.8	–43.8	–42.2
District of Columbia	0.7	–20.4	–16.4	–14.2	–2.3	–16.7	–14.7	–13.1
Florida	3.2	–17.9	–13.9	–11.6	7.0	–7.4	–5.5	–3.8
Georgia	–6.1	–27.2	–23.2	–21.0	–8.6	–23.0	–21.1	–19.4
Hawaii	12.9	–8.2	–4.2	–2.0	8.9	–5.5	–3.6	–1.9
Idaho	6.1	–15.0	–11.0	–8.8	9.7	–4.7	–2.8	–1.1
Illinois	–1.0	–22.1	–18.1	–15.9	4.5	–9.9	–7.9	–6.3
Indiana	5.4	–15.7	–11.7	–9.4	1.8	–12.6	–10.6	–9.0
Iowa	2.5	–18.6	–14.6	–12.4	5.4	–9.0	–7.1	–5.4
Kansas	13.0	–8.1	–4.1	–1.9	6.5	–7.9	–5.9	–4.3
Kentucky	–17.0	–38.1	–34.1	–31.8	–18.9	–33.3	–31.3	–29.7
Louisiana	–27.1	–48.2	–44.2	–41.9	–19.6	–34.0	–32.1	–30.4
Maine	–2.9	–24.0	–20.0	–17.7	–3.4	–17.8	–15.8	–14.2
Maryland	–6.0	–27.1	–23.1	–20.9	0.8	–13.6	–11.7	–10.0
Massachusetts	–2.1	–23.1	–19.2	–16.9	–2.6	–17.0	–15.0	–13.4
Michigan	–12.5	–33.5	–29.6	–27.3	–11.6	–26.0	–24.1	–22.4
Minnesota	12.4	–8.7	–4.7	–2.5	10.5	–3.9	–1.9	–0.3
Mississippi	–9.0	–30.1	–26.1	–23.9	–16.9	–31.3	–29.3	–27.7
Missouri	–10.6	–31.7	–27.7	–25.4	–15.4	–29.8	–27.9	–26.2
Montana	–0.1	–21.2	–17.2	–15.0	–1.2	–15.6	–13.6	–12.0
Nebraska	2.6	–18.5	–14.5	–12.3	8.7	–5.7	–3.7	–2.1
Nevada	–6.0	–27.1	–23.1	–20.8	1.8	–12.6	–10.6	–9.0
New Hampshire	12.6	–8.5	–4.5	–2.3	12.9	–1.5	0.5	2.1
New Jersey	6.5	–14.6	–10.6	–8.3	4.6	–9.8	–7.8	–6.2
New Mexico	–2.0	–23.1	–19.1	–16.8	–2.8	–17.2	–15.2	–13.6
New York	3.8	–17.3	–13.3	–11.1	–5.3	–19.7	–17.7	–16.1
North Carolina	12.2	–8.9	–4.9	–2.6	8.4	–6.0	–4.0	–2.4
North Dakota	–4.8	–25.9	–21.9	–19.7	–11.6	–26.0	–24.0	–22.4
Ohio	–16.8	–37.9	–33.9	–31.7	–15.2	–29.6	–27.6	–26.0
Oklahoma	6.2	–14.9	–10.9	–8.7	7.0	–7.4	–5.4	–3.8
Oregon	0.4	–20.7	–16.7	–14.5	8.4	–6.0	–4.0	–2.4
Pennsylvania	7.4	–13.7	–9.7	–7.5	9.2	–5.2	–3.2	–1.6
Rhode Island	16.2	–4.9	–0.9	1.4	9.9	–4.5	–2.5	–0.9
South Carolina	–10.5	–31.6	–27.6	–25.3	–17.8	–32.2	–30.2	–28.6
South Dakota	3.8	–17.3	–13.3	–11.0	8.6	–5.8	–3.9	–2.2
Tennessee	–18.8	–39.9	–35.9	–33.6	–19.0	–33.4	–31.4	–29.8
Texas	–15.3	–36.3	–32.4	–30.1	–10.9	–25.3	–23.3	–21.7
Utah	4.1	–17.0	–13.0	–10.8	3.1	–11.3	–9.3	–7.7
Vermont	6.1	–15.0	–11.0	–8.8	6.9	–7.5	–5.5	–3.9
Virginia	–26.3	–47.4	–43.4	–41.2	–16.3	–30.7	–28.7	–27.1
Washington	11.4	–9.7	–5.7	–3.4	5.7	–8.6	–6.7	–5.0
West Virginia	–2.4	–23.5	–19.5	–17.2	–6.1	–20.5	–18.5	–16.9
Wisconsin	7.7	–13.4	–9.4	–7.1	3.3	–11.1	–9.2	–7.5
Wyoming	21.1	0.0	4.0	6.2	9.4	–5.0	–3.1	–1.4

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 Reading Assessments.

APPENDIX D. SD BACKGROUND QUESTIONNAIRES



SD Background Questionnaire

2005

UNITED STATES DEPARTMENT OF EDUCATION

Dear Principal or Administrator:

Thank you for allowing your school to participate in the 2005 National Assessment of Educational Progress (NAEP). These assessments are vital to measuring the academic skills and progress of the students in our nation and in each state.

As you know, the Individuals with Disabilities Education Act (IDEA) requires that all students with disabilities participate in state and district wide assessment programs through regular assessments, including with appropriate accommodations when necessary, or alternate assessments. The No Child Left Behind Act (NCLB) likewise requires the participation of students with disabilities in the student academic assessments required under that Act, and also requires that limited-English-proficient students, as well as other groups of students, participate in those state assessments. NCLB allows for reasonable accommodations on assessments administered to limited-English-proficient students. Although federal law does not explicitly specify similar requirements regarding the participation of students with disabilities and limited English-proficient students in NAEP, the NAEP program has been working very hard to make its sample of students taking the assessments as representative as possible of all students. We are asking you to ensure that the greatest possible number of students with disabilities and limited-English-proficient students in your school, who are selected to participate, do in fact take the assessments.

Please keep in mind that NAEP does not produce results for individual students or schools, as your state or district tests might. All results are summarized only at the national and state levels (and for a few large urban districts). In other words, the NAEP assessments do not impose consequences for the student or the school, and are instead intended purely to provide a picture of educational performance and progress.

We want to include as many students as possible in the picture NAEP provides for us. For this reason, we ask you to do all you can to help ensure the participation of students who are selected for NAEP whenever possible, including students with disabilities and limited-English-proficient students. Students taking the NAEP are able to use most of the testing accommodations they usually receive in other tests (e.g., extended time, small group testing). Most students with disabilities and limited-English-proficient students are indeed able to participate in NAEP with their fellow students.

NAEP is one of the most visible and important indicators of educational performance in this country, and we very much appreciate your support in making NAEP as inclusive as possible.

Maria Hernandez Ferrier, Ed. D.
Deputy Under Secretary
Office of English Language Acquisition

Troy R. Justesen, Ed. D.
Delegated the authority
to perform the functions of
Assistant Secretary for Special
Education and Rehabilitative Services

NAEP Questionnaire Regarding Students with a Disability (SD)

Some students in your school have been selected, as part of a representative sample of students across the country, to take part in the National Assessment of Educational Progress (NAEP). The current NAEP assessment focuses on students' performance in civics, economics, mathematics, reading, science, and U.S. history. As part of the assessment, NAEP collects background information about students, their teachers, and their school that may be related to students' academic performance.

In order to obtain a complete picture of educational progress for **all** students, it is important to collect supplemental information on students in the sample who have been identified as having a physical or mental disability—**whether they will be assessed or not**. Students with disabilities include those who have an individual education plan (IEP), Section 504 plan, or equivalent documentation for reasons other than gifted or talented. We are asking you to complete this questionnaire about **one** of those students.

NAEP is authorized under Public Law 107–110. While your participation is voluntary, your responses to these questions are needed to make this survey accurate and complete. All responses that relate to or describe identifiable characteristics of teachers or schools may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purposes, unless otherwise compelled by law.

Thank you very much for your help.

INSTRUCTIONS FOR FILLING OUT QUESTIONNAIRE

Please complete this questionnaire for the student named on the front cover. If the student named on the front cover does not meet the definition for a student with a disability, or if you do not know about the student's disability, instruction, and assessment, please return this questionnaire to the NAEP school coordinator.

Please answer questions directly on this questionnaire with a number 2 pencil by filling in the appropriate ovals and, if necessary, by writing your responses in the spaces provided. When you are finished, please return the questionnaire to your school's NAEP coordinator.

VC037154

What is your relationship to the student named on the front cover?

Ⓐ Classroom (General Education) Teacher

Ⓑ Special Education Teacher

Ⓒ Related Service Provider (e.g., Speech Language Pathologist, Occupational Therapist, Physical Therapist)

Ⓓ Guidance/School Counselor

Ⓔ Principal/Assistant Principal

Ⓕ Other (specify)

_____

VC035061

1. Why is this student classified as SD?

   Ⓐ The student has a disability and has an individualized education plan.

   Ⓑ The student has a Section 504 plan.

   Ⓒ The student has a disability, but the student's IEP or 504 plan is in process, and/or the student's status is unclear.

VB338417

2. Which of the following describes this student's identified disability(ies)? **(Fill in all ovals that apply.)**

   Ⓐ Specific learning disability

   Ⓑ Hearing impairment/deafness

   Ⓒ Visual impairment/blindness

   Ⓓ Speech or language impairment

   Ⓔ Mental retardation

   Ⓕ Emotional handicap/disturbance

   Ⓖ Orthopedic impairment

   Ⓗ Traumatic brain injury

   Ⓘ Autism

   Ⓙ Developmental delay (age 9 or younger)

   Ⓚ Other health impairments

   Ⓛ Other (specify)

   _____

VB338418

3. In your judgment, what is the degree of this student's disability(ies)?

   Ⓐ Profound/Severe

   Ⓑ Moderate

   Ⓒ Mild

VC035067

4. At a minimum, do this student's long-term mathematics objectives include the ability to perform basic mathematics calculations without the use of a calculator?

   Ⓐ Yes

   Ⓑ No

   Ⓒ I don't know.

VC035068

5. At a minimum, do this student's long-term reading objectives include the ability to decode simple printed material?

   Ⓐ Yes

   Ⓑ No

   Ⓒ I don't know.

VC035069

6. What proportion of his or her academic class time (in subjects such as mathematics, reading/language arts, science, and social studies) does this student spend in the mainstream/ general education classroom(s)?

   Ⓐ None

   Ⓑ Half or less

   Ⓒ More than half, but not all

   Ⓓ All

   Ⓔ I don't know.

VC035071

7. In which area(s) is this student currently receiving special education services? **(Fill in all ovals that apply.)**

   Ⓐ This student does not currently receive special education services.

   Ⓑ Language development

   Ⓒ Reading

   Ⓓ Mathematics

   Ⓔ Science

   Ⓕ Social Studies

   Ⓖ Speech (e.g., articulation, voice, speech flow)

   Ⓗ Self-control and/or deportment

   Ⓘ Personal care and/or basic life skills

   Ⓙ Vocational education

   Ⓚ Other (specify)

   _____

   Ⓛ I don't know.

VC043013

8. Refer to the front cover to determine the subject in which this student is being assessed by NAEP, and fill in the oval for that subject below.

   Ⓐ Civics

   Ⓑ Economics

   Ⓒ Mathematics

   Ⓓ Reading

   Ⓔ Science

   Ⓕ U.S. history

Questions 9–15, which follow, ask about this student's instruction and assessment in the subject identified in question 8.

VC043017

9. What grade level of instruction is this student currently receiving in the subject identified in question 8?

   Ⓐ This student is currently not receiving instruction in this subject.

   Ⓑ At or above grade level

   Ⓒ One year below grade level

   Ⓓ Two or more years below grade level

   Ⓔ I don't know.

VC035099

10. Is this student participating in the same curriculum content as nondisabled students in the subject identified in question 8?

Ⓐ This student is currently not receiving instruction in this subject.

Ⓑ Same curriculum content

Ⓒ Different curriculum content

Ⓓ I don't know.

VC035101

11. According to the student's IEP or 504 plan, how does this student participate in the state academic assessment in the subject identified in question 8? If your state does not have an assessment in the subject identified in question 8, indicate how this student participates in your state's reading/ language arts assessment.

Ⓐ Student's plan is still in process.

Ⓑ Regular assessment without accommodations

Ⓒ Regular assessment with accommodations

Ⓓ Regular assessment using accommodations *not* allowed in the regular state assessment

Ⓔ Out-of-level (off-grade) assessment

Ⓕ Alternate assessment for students who are significantly cognitively disabled

Ⓖ Other (specify)

_____

For questions 12–15, please indicate which accommodations this student receives, if any, in the state academic assessment in the subject identified in question 8. If your state does not have an assessment in the subject identified in question 8, indicate which accommodations this student receives, if any, in your state's reading/ language arts assessment.

VC035119

12. **Presentation** Accommodations **(Fill in all ovals that apply.)**

Ⓐ No presentation accommodations

Ⓑ Directions read aloud to student or presented by audiotape

Ⓒ Directions signed

Ⓓ Directions repeated

Ⓔ Assistance with interpretation of directions given

Ⓕ Passages, other test stimuli, or test questions read aloud or presented by audiotape

Ⓖ Braille edition of test

Ⓗ Large-print edition of test

Ⓘ Magnifying equipment provided

Ⓙ Test administered by person familiar to the student

Ⓚ Other (specify)

_____

VC035122

13. **Response** Accommodations **(Fill in all ovals that apply.)**

- Ⓐ No response accommodations
- Ⓑ Responds in Braille
- Ⓒ Responds in sign language
- Ⓓ Points to answers
- Ⓔ Responds orally
- Ⓕ Tape records answers
- Ⓖ Uses computer to respond
- Ⓗ Uses typewriter to respond
- Ⓘ Uses a template to respond
- Ⓙ Uses a large marking pen or specially designed writing tool
- Ⓚ Writes directly in test booklet
- Ⓛ Uses a calculator, including talking or Braille calculators, for computation tasks
- Ⓜ Other (specify)

_____

VC035140

14. **Setting** Accommodations **(Fill in all ovals that apply.)**

- Ⓐ No setting accommodations
- Ⓑ Tested in small group
- Ⓒ Tested individually
- Ⓓ Tested in separate room
- Ⓔ Receives preferential seating
- Ⓕ Special lighting provided
- Ⓖ Special furniture provided
- Ⓗ Other (specify)

_____

VC035160

15. **Timing** Accommodations **(Fill in all ovals that apply.)**

- Ⓐ No timing accommodations
- Ⓑ Receives extended time
- Ⓒ Receives breaks during test
- Ⓓ Tested over several days
- Ⓔ Other (specify)

_____

Question 16 asks you to judge whether this student can participate in the NAEP assessment, either with or without accommodations.

The NAEP assessment includes both multiple-choice and constructed-response (open-ended) questions.

A student identified as having a disability *should be included* in the NAEP assessment unless he or she is significantly cognitively disabled or unable to demonstrate his or her knowledge in the subject being assessed without an accommodation that is not permitted in NAEP.

NAEP permits most, but not all, accommodations provided for state assessment programs. In the **reading** assessment, NAEP *does not* permit the reading passages or test questions to be read aloud or presented by audiotape. In the **mathematics** assessment, NAEP *does not* permit use of calculators on computation questions. Testing over more than one day *is not* permitted in any NAEP assessment. NAEP does not have out-of-level (off-grade) or alternate assessments.

VC035219

16. In your judgment, can this student participate in NAEP in the subject identified in question 8?

   Ⓐ Yes, without accommodations

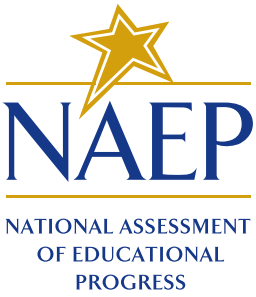
   Ⓑ Yes, with accommodations permitted in NAEP

   Ⓒ No, this student is significantly cognitively disabled.

   Ⓓ No, this student cannot be assessed without an out-of-level (off-grade) or alternate assessment.

   Ⓔ No, this student cannot demonstrate his or her knowledge in the subject being assessed without accommodations that are not permitted in NAEP.

THANK YOU FOR YOUR COOPERATION



Students with Disabilities Background Questionnaire

2007

UNITED STATES DEPARTMENT OF EDUCATION

OFFICE OF SPECIAL EDUCATION AND REHABILITATIVE SERVICES

Dear Principal or Administrator:

Thank you for allowing your school to participate in the National Assessment of Educational Progress (NAEP). These assessments are vital to measuring the academic skills and progress of the students in our nation and in each state.

As you know, the Individuals with Disabilities Education Act (IDEA) requires that all students with disabilities participate in state and district wide assessment programs through regular assessments, including with appropriate accommodations when necessary, or alternate assessments. The No Child Left Behind Act (NCLB) likewise requires the participation of students with disabilities in the student academic assessments required under that Act, and also requires that English language learners, as well as other groups of students, participate in those state assessments. NCLB allows for reasonable accommodations on assessments administered to English language learners. Although federal law does not explicitly specify similar requirements regarding the participation of students with disabilities and English language learners in NAEP, the NAEP program has been working very hard to make its sample of students taking the assessments as representative as possible of all students. We are asking you to ensure that the greatest possible number of students with disabilities and English language learners in your school, who are selected to participate, do in fact take the assessments.

Please keep in mind that NAEP does not produce results for individual students or schools, as your state or district tests might. All results are summarized only at the national and state levels (and for a few large urban districts). In other words, the NAEP assessments do not impose consequences for the student or the school, and are instead intended purely to provide a picture of educational performance and progress.

We want to include as many students as possible in the picture NAEP provides for us. For this reason, we ask you to do all you can to help ensure the participation of students who are selected for NAEP whenever possible, including students with disabilities and English language learners. Students taking the NAEP are able to use most of the testing accommodations they usually receive in other tests (e.g., extended time, small group testing). Most students with disabilities and English language learners are indeed able to participate in NAEP with their fellow students.

NAEP is one of the most visible and important indicators of educational performance in this country, and we very much appreciate your support in making NAEP as inclusive as possible.

Kathleen Leos
Assistant Deputy Secretary
Office of English Language Acquisition

Alexa Posny
Director
Office of Special Education Programs

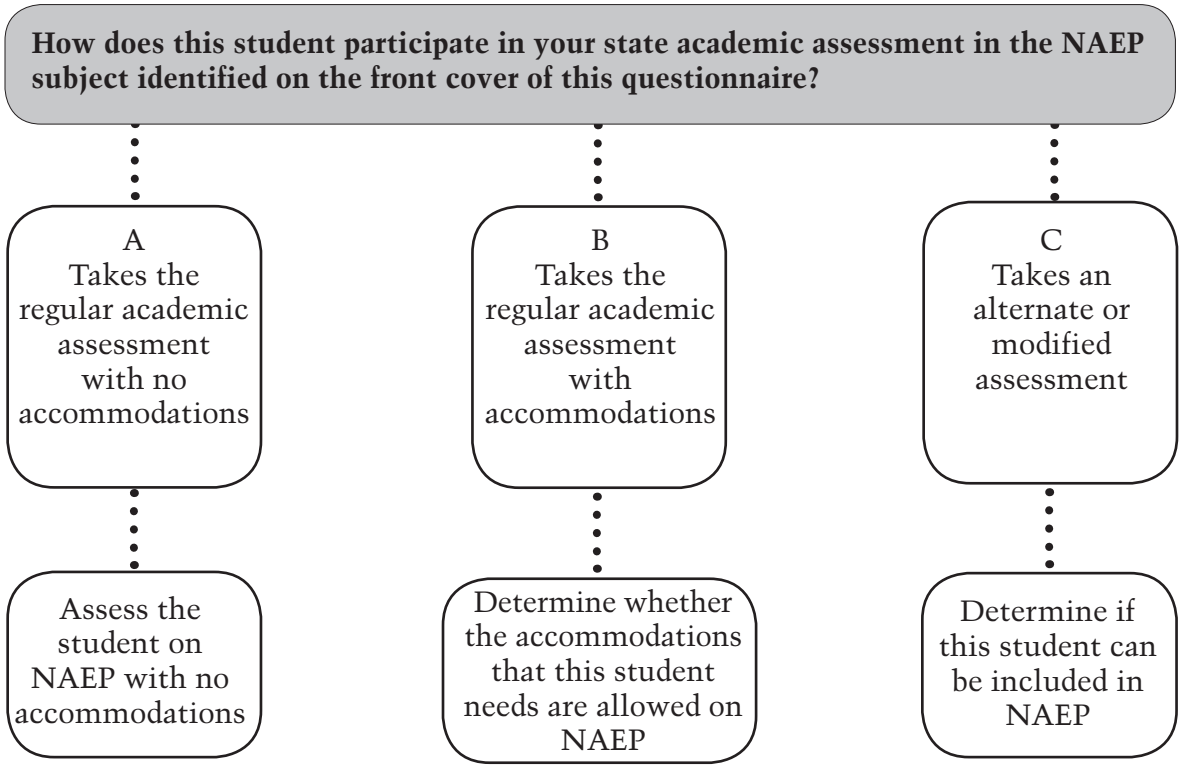
GENERAL DIRECTIONS FOR COMPLETING THIS QUESTIONNAIRE

The student named on the front cover of this questionnaire has been selected to participate in the National Assessment of Educational Progress (NAEP) and has been identified as a student with disabilities (SD). NAEP's definition of SD includes only:

- students with an Individualized Educational Program (IEP), for reasons other than being gifted or talented; or
- students with 504 Plans.

The decision tree below illustrates the steps in determining how best to include this student in NAEP. By answering the questions in this questionnaire, you will provide the information needed to make this determination.

SD DECISION TREE



Please answer the questions on pages 4–7 about this student and return the completed questionnaire to the person in your school who is coordinating NAEP activities.

Thank you very much for your help!

VC195177

1. Why is this student classified as SD? (Fill in **one** oval.)

   Ⓐ This student has a disability and has an IEP. (Continue)

   Ⓑ This student has a Section 504 Plan. (Continue)

   Ⓒ This student has a disability, but the student's IEP or 504 Plan is in process and/or the student's status is unclear. (Continue)

   Ⓓ This student has an IEP because he/she is classified as gifted and talented. (Do not complete this questionnaire. Return it to the person coordinating NAEP at your school.)

VC195186

Question 2 asks about the subject identified on the front cover of this questionnaire because this student has been selected for the assessment of this subject. If the subject is reading or mathematics, refer to the state assessment used for reporting adequate yearly progress under No Child Left Behind. If this student does not take a state test in this subject refer to local testing or instructional practice.

2. How does this student participate in your state academic assessment in the NAEP subject identified **on the front cover** of this questionnaire? (Fill in **one** oval.)

   Ⓐ This student takes the regular academic assessment **with no accommodations**. → *Skip to page 7 and answer questions 7–9.*

   Ⓑ This student takes the regular academic assessment **with accommodations**. → *Go to pages 5, 6, and 7 and answer questions 3–9.*

   Ⓒ This student **takes an alternate or modified** state academic assessment. → *Skip to page 6 and answer question 6, then complete page 7.*

3. Which accommodations does this student receive for your state's assessment in the NAEP subject identified **on the front cover** of this questionnaire?

   Fill in the oval in Column A for each accommodation that this student receives for your state's assessment in the NAEP subject indicated on the front cover of this questionnaire. If this student does not take a state assessment in the NAEP subject, please indicate the accommodations this student receives in local testing or in instruction.

This Student	COLUMN A Accommodations student receives on state assessment in NAEP subject	COLUMN B Are these accommodations allowed on NAEP?			COLUMN C If allowed on NAEP, who provides accommodation?
		Reading	Math	Writing	
Presentation Format					
Has directions read aloud/repeated in English or receives assistance to understand directions	○	Standard NAEP practice			NAEP provides
Has directions **only** signed	○	Y	Y	Y	School provides
Has test items signed	○	N	Y	Y	School provides
Has **occasional** words or phrases read aloud	○	N	Y	Y	NAEP provides
Has **all or most** of the test materials read aloud	○	N	Y	Y	NAEP provides
Uses a Braille version of the test	○	Y	Y	Y	NAEP provides
Uses a large print version of the test	○	Y	Y	Y	NAEP provides
Uses magnifying equipment	○	Y	Y	Y	School provides
Response Format					
Responds in sign language	○	Y	Y	N	School provides
Uses a Braille typewriter to respond	○	Y	Y	Y	School provides
Points to answers or responds orally to a scribe	○	Y	Y	N	School provides
Tape records answers	○	N	N	N	NA
Uses a computer or typewriter to respond	○	Y Spell/grammar check not allowed	Y	Y	School provides
Uses a template to respond	○	Y	Y	Y	School provides
Uses a large marking pen or special writing tool	○	Y	Y	Y	School provides
Writes directly in the test booklet	○	Standard NAEP practice			NA
Setting Format					
Takes the test in a small group (5 or fewer)	○	Y	Y	Y	NAEP provides*
Takes the test one-on-one	○	Y	Y	Y	NAEP provides*
Takes the test in a study carrel	○	Y	Y	Y	School provides
Receives preferential seating, special lighting, or furniture	○	Y	Y	Y	School provides
Has test administered by familiar person	○	Y	Y	Y	School provides
Timing Accommodations					
Receives extended time	○	Y	Y	Y	NAEP provides
Is given breaks during the test	○	Y	Y	Y	NAEP provides
Takes test session over several days	○	N	N	N	NA
Other Accommodations					
Uses a calculator, including talking or Braille calculator for computation tasks	○	N	N	N	NA
Uses an abacus, arithmetic tables, graph paper	○	N	N	N	NA
Uses dictionary, thesaurus, or spelling/grammar-checking software or devices	○	N	N	N	NA
Receives other accommodations	○				

NA = not applicable

* NAEP provides staff to conduct small group or one-on-one sessions after regular sessions.

Answer Question 4 and, if necessary, Question 5 using the information in Columns A and B on page 5.

VC195245

4. Are all of the accommodations this student receives on the state assessment as recorded in Column A allowed on NAEP (Column B)? (Fill in **one** oval.)

   Ⓐ Yes. This student should be assessed with these accommodations, as allowed on NAEP. → *Skip to page 7.*

   Ⓑ No. → *Answer question 5 below.*

VC195258

5. Can this student be assessed with only the accommodations allowed on NAEP? (Fill in **one** oval.)

   Ⓐ Yes. This student should be assessed with only the accommodations allowed on NAEP. → *Skip to page 7.*

   Ⓑ No. This student should not be assessed on NAEP. → *Skip to page 7.*

VC195269

6. Could the student participate in NAEP with any of the accommodations allowed on NAEP as listed in Column B on page 5? (Fill in **one** oval.)

   Ⓐ Yes. List the accommodations allowed on NAEP and include the student in NAEP.

   _____

   → *Go to page 7 and answer questions 7, 8, and 9.*

   Ⓑ No. This student should not be assessed on NAEP.
   → *Go to page 7 and answer questions 7, 8, and 9.*

VB338417

7. Which of the following describes this student's identified disability(ies)? **(Fill in all ovals that apply.)**

   Ⓐ Specific learning disability

   Ⓑ Hearing impairment/deafness

   Ⓒ Visual impairment/blindness

   Ⓓ Speech or language impairment

   Ⓔ Mental retardation

   Ⓕ Emotional disturbance

   Ⓖ Orthopedic impairment

   Ⓗ Traumatic brain injury

   Ⓘ Autism

   Ⓙ Developmental delay (age 9 or younger)

   Ⓚ Other health impairment

   Ⓛ Other (specify)

   _____

VC188552

8. What is the degree of this student's disability(ies)?

   Ⓐ Profound/Severe

   Ⓑ Moderate

   Ⓒ Mild

VC121987

9. What grade level of instruction is this student currently receiving in the subject indicated on the front cover?

   Ⓐ This student is currently not receiving instruction in this subject.

   Ⓑ At or above grade level

   Ⓒ One year below grade level

   Ⓓ Two or more years below grade level

   Ⓔ I don't know.

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