

Measuring Status and Change in NAEP Inclusion Rates of Students With Disabilities

Results 2007-09



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Foreword

In 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* (U.S. General Accounting Office 2005). In the report, the GAO recommended that the National Center for Education Statistics (NCES) “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 National Assessment of Educational Progress (NAEP) assessment.” NCES responded with the following actions:

- Researched the local decision-making process for participation and accommodation of students with disabilities on NAEP;
- Implemented a process to determine whether students could participate in NAEP without their normal state accommodations; and
- Improved training of NAEP administrators and field staff for 2007 and subsequent assessments that clarified the criteria for inclusion.

NCES also conducted research to develop a methodology for measuring state inclusion rates while taking into account the differing demographics and inclusion policies in each state. This study provides an update of that research and methodology using data from the 2009 NAEP administration.

About the Study

Previous Research

Reporting of trends requires consistency in inclusion practices across years, and the lack of consistency in the inclusion of students with disabilities has been a concern for NAEP researchers (Forgione 1999; McLaughlin 2000, 2001, 2003). Numerous publications and working papers related to the inclusion of students in NAEP have been conducted and are available on the NCES website at: <http://nces.ed.gov/nationsreportcard/about/inclusion.asp>.

In 2009, NCES released a Research and Development report, *Measuring the Status and Change of NAEP State Inclusion Rates for Students with Disabilities* (Kitmitto and Bandeira de Mello 2009). The report provided a methodology and two measures of change in each state's inclusion rate, taking into consideration the following factors that differ across states and across time:

- The prevalence of students with different types and severities of disabilities; and
- The accommodations that states permit in their own testing programs compared with those allowed for NAEP.

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 are meant to be captured by our change measure.

That study reported results for all 50 states and the District of Columbia and used data from the 2005 and 2007 NAEP fourth- and eighth-grade reading and mathematics assessments. The methodology developed in the report was next applied to measuring change in districts participating in the Trial Urban District Assessment (TUDA) program.

The full report with state-level results is available to download at: <http://nces.ed.gov/nationsreportcard/pubs/studies/2009453.asp>.

The results for the application to TUDA districts are available on the NCES website at: http://nces.ed.gov/nationsreportcard/about/tuda_status_change_inclusion.asp.

Current Study

NCES continues to be interested in addressing the issue identified by GAO. With the release of the 2009 NAEP reading and mathematics assessments, NCES again had the opportunity to measure the status and change in inclusion rates and, hence, conducted this update to the 2009 report. Additionally, while

the general methodology did not change, the specification of the statistical model changed slightly. First, changes in the background information that NAEP collects on students with disabilities meant that one of the control factors that had been used in the previous report was not available in the 2009 administration and therefore was not used in the model. Second, efforts were made to re-specify the statistical model to better handle student observations with missing background information.

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 reports for policy.

Though the focus of this study is on change over 2007-09, results from 2005-07 were re-calculated with the updated model. Changes in inclusion for 2005-07 and 2005-09 are presented with the 2007-09 results for comparative purposes. Details on the changes in the methodology as well as full results are provided at: <http://nces.ed.gov/nationsreportcard/studies/inclusion/>.

Data

All data used in this report were obtained from the 2005, 2007, and 2009 NAEP administrations. The sample was limited to public school students with disabilities (SDs) who are not English language learners (ELLs). This is different from other NAEP reporting of students with disabilities that typically includes students who are also English language learners. ELLs were not included in the analysis because factors influencing the inclusion of SDs and ELLs are distinct. We expect SDs who are also ELLs to be included on NAEP under a different process; hence, we 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.

Information on the characteristics of students with disabilities was collected through NAEP's SD Questionnaire. The SD Questionnaire is intended to be completed by the special education teacher or staff member who is most familiar with the student. Copies of the 2005, 2007, and 2009 SD questionnaires (all subjects) can be found at: <http://nces.ed.gov/nationsreportcard/bgquest.asp>.

As in the earlier report (Kitmitto and Bandeira de Mello 2009), the discussions presented here are exploratory in nature and therefore cannot be used to draw causal inferences.

Organization of the Report

This report starts with a brief introduction to the inclusion of students with disabilities on NAEP and motivation for the methodology used in this study. Next is a discussion of the variability of inclusion rates across states and across student characteristics. This is followed by a discussion of variability of student characteristics across states and time. The core methodology for measuring change is then introduced as well as a measure of inclusiveness, or “status measure,” in the initial year over which change is measured. The status measure provides context for understanding the change measure. An illustrated example is then provided. The remainder of the report is devoted to a summary of results for 2007-09 and a comparison of change over 2005-07 to change over 2007-09. The consistency of change across subjects (mathematics and reading), grades (4 and 8), and time periods (2005-07, 2007-09, and 2005-09) is explored at the end of the report.

NOTE: For this report the District of Columbia is defined and referred to as a state.



Inclusion of Students With Disabilities

The decision about whether a student with disabilities is included in NAEP is made by a school staff member most knowledgeable about the student. A student with disabilities is assumed to be able to participate in NAEP if he or she participated in the state assessment in the selected subject and can participate with accommodations allowed by NAEP. Schools are encouraged to have students with disabilities participate whenever possible.

In the 2009 NAEP grade 4 mathematics administration, among national public schools, 12.1 percent of all students were identified as having a disability and were not also English language learners (table 1). Of those students with disabilities, 85.4 percent were assessed on NAEP. In 2009 grade 8 mathematics, 11.9 percent of all students were students with disabilities who are not English language learners, and of them, 78.5 percent were assessed on NAEP. Mathematics is displayed as an example.

Table 1. Percentage of public school students with disabilities who are not English language learners and are identified and assessed in mathematics: 2005, 2007, and 2009

National Public Schools	Mathematics Grade 4			Mathematics Grade 8		
	2005	2007	2009	2005	2007	2009
Percentage of students who are identified as students with disabilities and not English language learners	12.6	12.2	12.1	12.4	11.5	11.9
Percentage of students with disabilities who are not English language learners and who are assessed	82.2	81.3	85.4	77.0	70.6	78.5

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Factors Affecting Inclusion

The expectation is that state-level inclusion rates will vary according to the 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 are not standard and are meant to be captured by our change measure. Student characteristics that are expected to have an impact on a state's inclusion rate include the following:

- Type of disability;
- Severity of disabilities;
- Individualized Education Plan (IEP) as opposed to a 504 or other type of plan¹; and
- Accommodation was received on the state test but was not allowed on NAEP.

Students with less severe disabilities, such as a speech or hearing impairment, are more often included in NAEP testing. Students with more severe disabilities, such as mental retardation, are less often included in NAEP.

Variation in inclusion rates across states and time may be due to differences in the prevalence of these factors listed above or due to unexplained sources of variation that include variation in state efforts to increase inclusion on NAEP and changes in NCES policy and practices. This study seeks to provide a measure of this

unexplained variation in inclusion rates across time and across states that controls for variation in the measurable student characteristics and state accommodation factors listed here.

Accounting for Differences in Student Characteristics

A state with a 90 percent inclusion rate is not necessarily more inclusive than a state with an 80 percent inclusion rate, because students with disabilities may have different characteristics across states. If a state has a higher percentage of severely disabled students, for example, it would be expected to have a lower inclusion rate. Hence, to properly compare the status of inclusion rates across states or to properly measure a state's change in inclusion rates across time, differences and changes in states' populations of students with disabilities must be taken into account. For example, if a state experiences a drop in the percentage of students classified with mental retardation (i.e., the percentage of students who are less often included), the state's inclusion rate would be expected to increase.

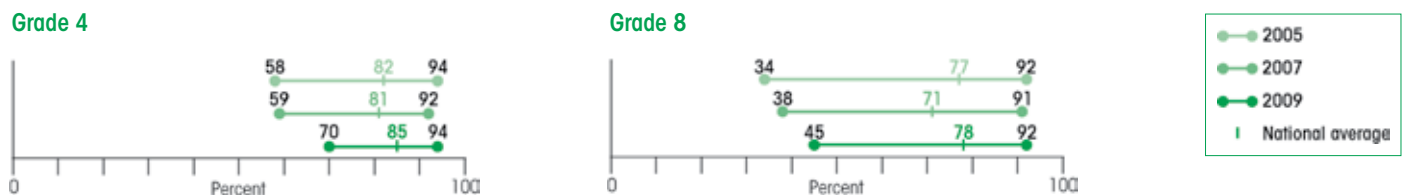


Understanding Inclusion Rates

Variation Among States

Since the late 1990s, the rates at which sampled students with disabilities have been participating (i.e., have been included) in NAEP have fluctuated. Figure 1 shows the range of state inclusion rates for 2005, 2007, and 2009.

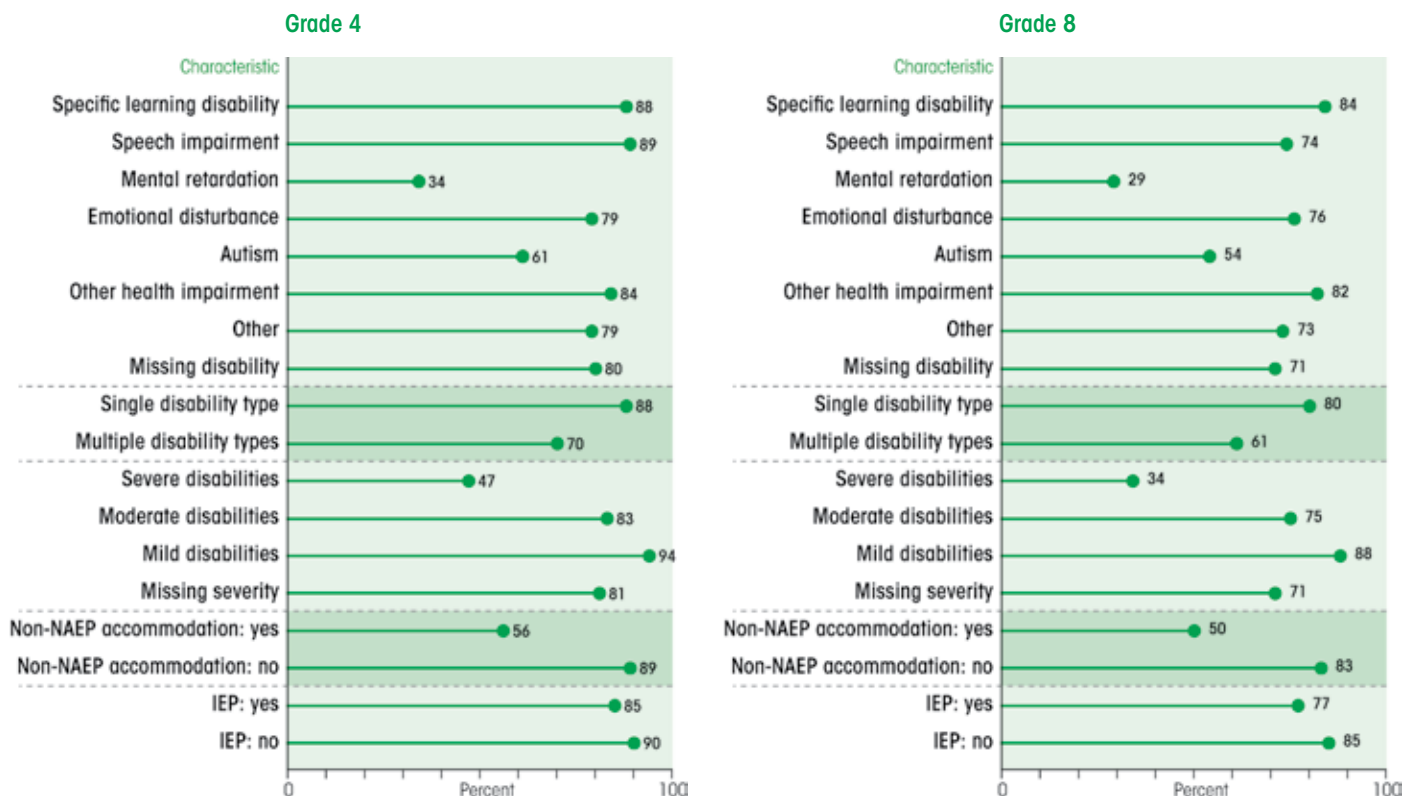
Figure 1. Range of state inclusion rates of public school students with disabilities who are not English language learners, in NAEP mathematics: 2005, 2007, and 2009



Variation in Inclusion by Student Type

While inconsistency in the practice of inclusion has been a concern, there are many reasons why NAEP inclusion rates might vary. Some students are more difficult to assess than others and if the percentage of such students increases, one would expect the inclusion rate to correspondingly decrease. Some measures that indicate whether it might be difficult to assess a student's performance on NAEP are the student's disability type, the severity level of the student's disabilities, and whether or not the student received an accommodation on the state assessment that is not allowed on NAEP. Figure 2 shows the percentages of students with a given disability characteristic that were included on the NAEP mathematics assessments. For example, in the 2009 mathematics grade 4 assessment, 88 percent of students with a *specific learning disability* were included.

Figure 2. Percentage of public school students with disabilities who are not English language learners and are included on the assessment, by characteristic, in NAEP mathematics: 2009



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2009 Mathematics Assessment.

Variation in the Population of Students With Disabilities Across States and Over Time

As described on the previous page, the characteristics of a student with disabilities (such as type of disability or severity of disability) affect the likelihood that the student is included in NAEP. The percentage of students with each of these characteristics varies across states and over time. In the discussion on this page and the following two pages, all percentages discussed are based on students identified as having a disability. The purpose of these figures is to give a sense of the variability in student characteristics, which were controlled for when determining the inclusiveness of a state and its change over time. Mathematics data are used as an example.

Type of Disability

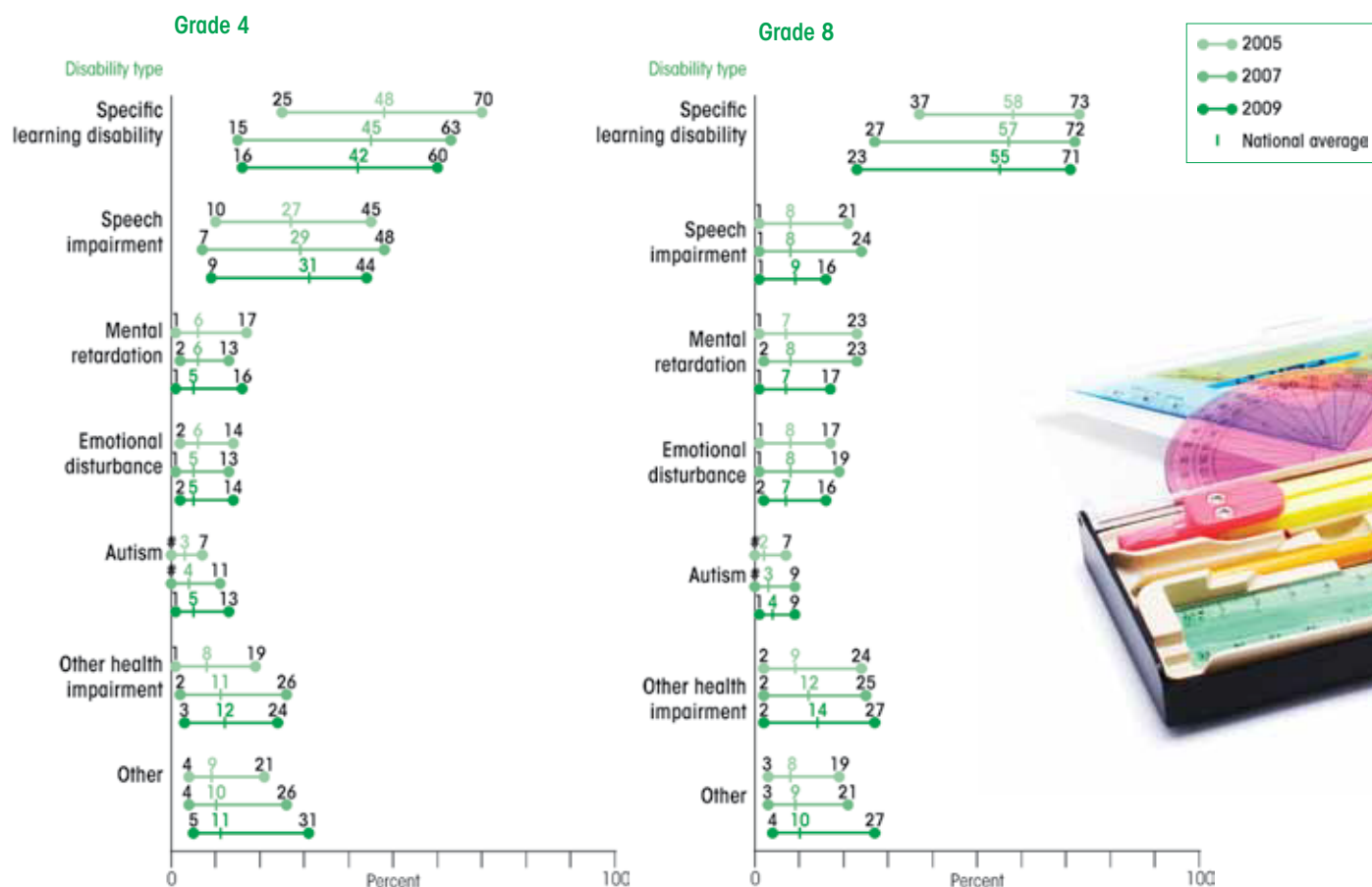
In 2009 nationally, as shown in figure 2, public school students with a specific learning disability were more often included in NAEP (88 percent inclusion rate in grade 4 mathematics; 84 percent in grade 8 mathematics) than those with mental retardation (34 percent in grade 4 mathematics; 29 percent in grade 8 mathematics).

- As shown in figure 3, the percentage of students with each type of disability varied across the participating states. For example, in 2009 the percentages of students with disabilities who were

identified as having mental retardation ranged across the states from under 1 percent to 16 percent in mathematics grade 4 and from 1 percent to 17 percent in mathematics grade 8. The average nationally for public school students was 5 percent in mathematics grade 4 and 7 percent in mathematics grade 8.

- States with high percentages of students with disabilities of types that are more often included in NAEP, such as specific learning disability, are generally expected to have higher inclusion rates. States with high percentages of students with disabilities of types that are less often included in NAEP, such as mental retardation, are expected generally to have lower inclusion rates.

Figure 3. Range among states of the percentages of public school students with disabilities who are not English language learners and are identified with a disability type, in NAEP mathematics: 2005, 2007, and 2009



Rounds to zero.

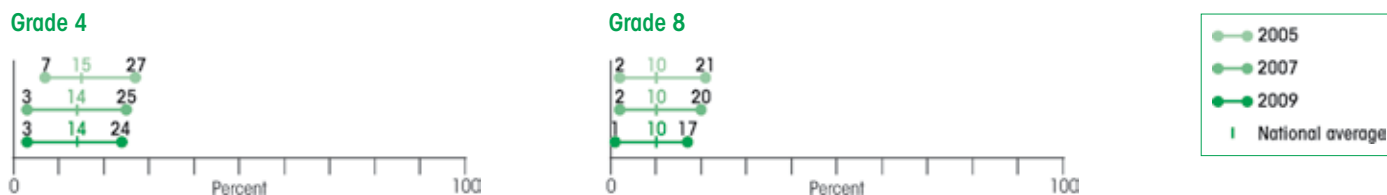
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Multiple Disabilities

Respondents to NAEP's SD Questionnaire are permitted to indicate more than one disability for each student with disabilities. An indicator for multiple disabilities is included on the assumption that the effect of having more than one disability might not simply be the addition of those two disability effects. Empirically, the multiple disabilities indicator reduces the expectation of inclusion in addition to the separate effects of each identified disability. In 2009 nationally, as shown in figure 2, public school students with multiple disabilities were less often included in NAEP (70 percent inclusion rate in grade 4 mathematics; 61 percent in grade 8 mathematics) than those with just one disability type (88 percent in grade 4 mathematics; 80 percent in grade 8 mathematics).

- As shown in figure 4, the percentage of students with disabilities with multiple types of disabilities varied across the states. In 2009, the percentage of students with disabilities with multiple types of disabilities ranged across the states from 3 percent to 24 percent in mathematics grade 4 and from 1 percent to 17 percent in mathematics grade 8. The average nationally for public school students was 14 percent in mathematics grade 4 and 10 percent in mathematics grade 8.
- A state with a higher percentage of students with disabilities with multiple types of disabilities is expected to have a lower inclusion rate than a state with a lower percentage of students with multiple types of disabilities.

Figure 4. Range among states of the percentages of public school students with disabilities who are not English language learners and are identified with multiple disabilities, in NAEP mathematics: 2005, 2007, and 2009



Severity of Disability

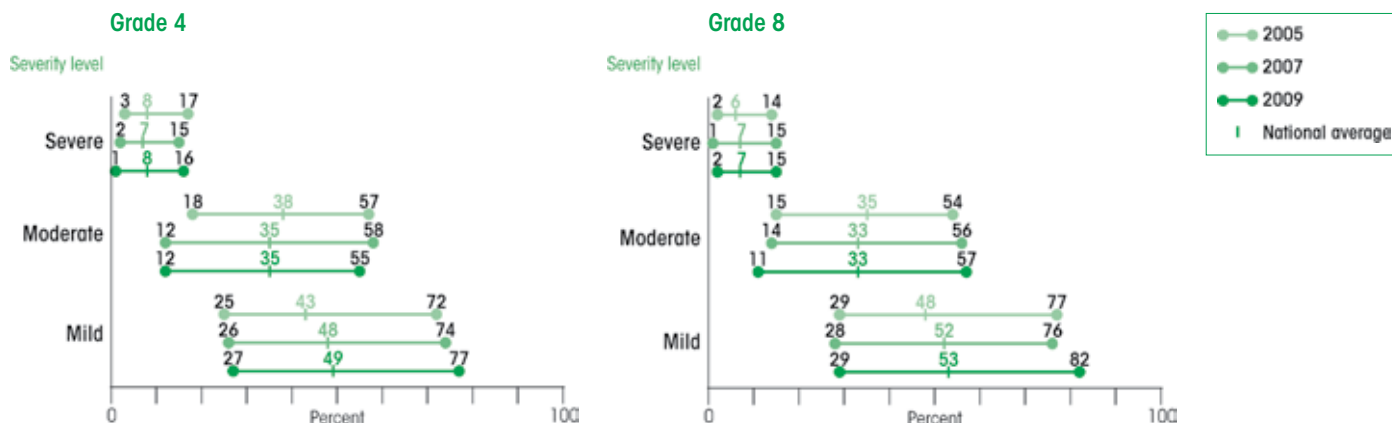
In 2009 nationally, as shown in figure 2, public school students with a severe disability were included in NAEP less often (47 percent inclusion rate in grade 4 mathematics; 34 percent in grade 8 mathematics) than those who had a mild disability (94 percent in grade 4 mathematics; 88 percent in grade 8 mathematics).

- As shown in figure 5, the range of the percentages of students with disabilities that were classified as severe in 2009 was 1 percent to 16 percent in mathematics grade 4 and 2 percent to 15 percent in mathematics grade 8.

15 percent in mathematics grade 8. Nationally among public school students, the average was 8 percent in mathematics grade 4 and 7 percent in mathematics grade 8.

- In 2009, the percentage of students with disabilities that were classified as mild ranged across states from 27 percent to 77 percent in mathematics grade 4 and from 29 percent to 82 percent in mathematics grade 8. Nationally among public school students, the average was 49 percent in mathematics grade 4 and 53 percent in mathematics grade 8.
- A state with a higher percentage of students with disabilities whose disabilities were classified as severe is expected to have a lower inclusion rate than a state with a lower percentage.

Figure 5. Range among states of the percentages of public school students with disabilities who are not English language learners and are identified in each severity level, in NAEP mathematics: 2005, 2007, and 2009



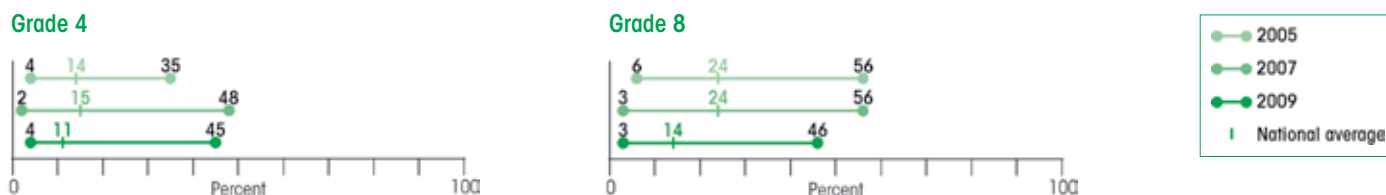
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Non-NAEP Accommodation

In some states, accommodations are given on the state tests that are not allowed on NAEP, such as use of a calculator for all mathematics questions. Changes in the use of these accommodations may reflect changes in the student population and/or changes in state practice. In 2009 nationally, as shown in figure 2, public school students with disabilities who received no accommodation on the state test or received accommodations on the state test that were also allowed by NAEP were included more often (89 percent inclusion rate in grade 4 mathematics; 83 percent in grade 8 mathematics) than students who did not receive an accommodation on the state test that was not allowed on NAEP (56 percent in grade 4 mathematics; 50 percent in grade 8 mathematics).

- As shown in figure 6, the range of the percentages of students with disabilities receiving an accommodation on the state test that was not allowed on NAEP in 2009 was 4 percent to 45 percent in mathematics grade 4 and 3 percent to 46 percent in mathematics grade 8. Nationally among public school students, the average was 11 percent in mathematics grade 4 and 14 percent in mathematics grade 8.
- A state with a higher percentage of students with disabilities receiving an accommodation on the state test that was not allowed on NAEP is expected to have a lower NAEP inclusion rate than a state with a lower percentage.

Figure 6. Range among states of the percentages of public school students with disabilities who are not English language learners and who received an accommodation on their state assessment that is not allowed on NAEP, in NAEP mathematics: 2005, 2007, and 2009

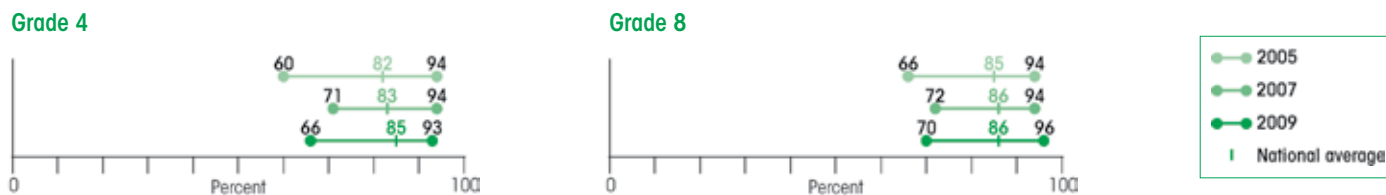


IEP

Not all students identified as students with disabilities have an IEP; some have a 504 plan and some have a plan in progress. In 2009 nationally, as shown in figure 2, public school students who had an IEP were less often included in NAEP (85 percent inclusion rate in grade 4 mathematics; 77 percent in grade 8 mathematics) than those who did not (90 percent in grade 4 mathematics; 85 percent in grade 8 mathematics).

- As shown in figure 7, the range across states of the percentages of students with disabilities with an IEP in 2009 was 66 percent to 93 percent in mathematics grade 4 and 70 percent to 96 percent in mathematics grade 8. Nationally among public school students, the average was 85 percent in mathematics grade 4 and 86 percent in mathematics grade 8.
- A state with a higher percentage of students with disabilities with an IEP is expected to have a lower inclusion rate than a state with a lower percentage.

Figure 7. Range among states of the percentages of public school students with disabilities who are not English language learners and who have an individualized education plan, in NAEP mathematics: 2005, 2007, and 2009



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

NOTE: An IEP is required for all students with an identified disability under the Individuals with Disabilities Education Act (IDEA).¹ Section 504 is a federal law designed to protect the rights of individuals with disabilities in programs and activities that receive Federal financial assistance from the U.S. Department of Education (ED). All students eligible for an IEP are eligible for a 504 plan but not all students eligible for a 504 plan are eligible for an IEP.

Measuring Change

The process for measuring change in inclusion rates, holding student characteristics constant, involved several steps. First, student-level benchmarks of inclusion (probability of inclusion) were set for each student profile based on relationships found using 2005 data. Second, a state-level benchmark of inclusion (predicted rate of inclusion) for a state in any given year was set by averaging the student-level benchmarks for all types of students with disabilities in that state. Finally, change in inclusiveness was measured across time in relation to these benchmarks. This process of measuring change is described below.

Student-Level Benchmarks

To calculate benchmarks of inclusion for each student profile, a logistic regression model (see “Statistical Model” on the next page) was used to predict the probability of inclusion for any given student based on his/her characteristics. This predicted probability of inclusion was the student-level benchmark. Students with characteristics associated with higher inclusion rates (such as those with a *specific learning disability* or those with a *mild* disability) had a higher benchmark and students with characteristics associated with lower inclusion rates (such as those with *mental retardation* or those with a *severe* disability) had a lower benchmark for inclusion. The model for calculating student-level benchmarks was estimated using 2005 data as the referent data set. These benchmarks were used in this study for students in the 2005, 2007, and 2009 administrations. Benchmarks for a given type of student do not change across time. Suppose, for example, the model estimated that a student with a *specific learning disability* that was *mild* and who had an IEP and *did not receive an accommodation on the state assessment that was not allowed on NAEP* was included 90 percent of the time using 2005 data. This would be the benchmark for that type of student. In all years and in all states, students of this type would be expected to be included 90 percent of the time.

State-Level Benchmarks

A state’s benchmark for inclusion is an aggregation of its students’ individual-level benchmarks. By averaging student-level benchmarks to the state level, a state’s benchmark takes into consideration the characteristics of its students. In this manner, the differing populations of students with disabilities across states and across time lead to different state-level benchmarks for measurement. While the benchmark for any given student profile does not change across time, if the distribution of student profiles in a state changes, the benchmark for that state will be different across time.

Change in Inclusion Rates

The inclusiveness of a state is measured by the difference between its actual inclusion rate and its benchmark inclusion rate, which will be referred to throughout the report as the status measure. Change is measured by how that inclusiveness shifts over time: if a state is 1 point above its benchmark for inclusion in 2007 and 5 points above its benchmark in 2009 (and that change, 4 points, is statistically different from zero) it is said to have become more inclusive from 2007 to 2009. Table 2 summarizes key aspects of the “nation-based” approach. Variations that result from factors other than type of disability, severity of disability, type of plan, and non-NAEP accommodations were not measured and were meant to be captured by our change measure.

Table 2. Summary description of nation-based approach

Dimension	Description
Purpose	Uses the entire nation to set benchmarks to measure change; provides a starting point measure
Approach	Uses one analytic model to estimate the relationship between inclusion and student characteristics using all states
Controls	Disability types, indicator for multiple disabilities, severity level, indicator of student having received an accommodation on state assessment not allowed on NAEP, indicator for having an individualized education plan
Result	Nation-based measure of change; starting point measure
Benefit	Greater detail than jurisdiction-specific approach in calculating benchmarks for measuring change

Jurisdiction-Specific Approach

Two approaches were developed for setting benchmarks for each type of student. The nation-based approach, used national averages to set benchmark inclusion rates for each type of student. The jurisdiction-specific model, an alternate approach, used averages in each state to set benchmark inclusion rates for each type of student. The jurisdiction-specific approach has the benefit that student-level benchmarks are estimated separately using 2005 data for each state. The drawback to the jurisdiction-specific approach is that since there are fewer observations for estimation, benchmarks are estimated with less information and with greater error. For this study, the focus was on the nation-based approach as the main approach while the jurisdiction-specific approach was used to check the robustness of the nation-based results by comparing the magnitude of change (reported in the appendices) and significance of change (reported in the appendices and in figures on pages 12-15). In the previous report (Kitmitto and Bandeira de Mello 2009), both approaches were presented without preference. Since results were found to be very similar for the two methods, it was decided to focus this report on the nation-based results where the larger number of observations allows for a more complex statistical model.

Status of Inclusion

Status of Inclusion Rates: A Context for Understanding Change

Change is always relative to a starting point. Each state's change measure needs to be understood in terms of how inclusive, as measured by the status measure, the state was in the initial year of any time period of change. States that are very inclusive relative to their benchmark (i.e., have high status measures) at the start have relatively less potential for improvement, while states that are less inclusive at the start relative to their benchmark (i.e., have low status measures) have more potential for improvement. If one is looking at change over 2007-09, then 2007 is the initial year (and 2005 for change over 2005-07 and 2005-09) and the 2007 status measure indicates how inclusive the state was relative to other states in 2007.

For the approach taken to measuring change, the nation-based approach, the student-level benchmarks of inclusion are the same across states for any given student profile. Hence, one can compare states directly on how inclusive they are relative to their state-level benchmarks. The status measure provides a starting point that controls for differences in the distribution of students with disabilities in each state.

- In 2007, if State A had an inclusion rate 7.1 percentage points above its state-level benchmark and State B had an inclusion rate 1 percentage point above its benchmark, one would say that State A was relatively more inclusive than State B.
- In 2007, if State B had an inclusion rate 1 percentage point above its state-level benchmark and State C had an inclusion rate 3 percentage points below its state-level benchmark (a status measure of -3), one would say that State C was relatively less inclusive than State B.

Statistical Model

Individual-level benchmarks were produced by estimating a logistic regression model of inclusion using student-level data. The dependent variable was an indicator variable for whether or not the student had been included in NAEP. Control variables included in the model were: indicators for each disability type, indicator for multiple disabilities, indicators for severity level of disabilities, indicator for students with an IEP, and an indicator for whether the student received an accommodation on the state assessment that was not allowed on NAEP. Disability type and severity level indicators were included by themselves as main effects and were also crossed with each other to allow for greater flexibility in measuring their effects.

In the previous report, Kitmitto and Bandeira de Mello (2009), indicator variables for “grade level of instruction” were included in the model. This item has been discontinued as part of the NAEP SD background questionnaire and therefore was not used in the model for the current study. The indicator for an IEP was an addition to the analysis that had not been previously included in the model. Another change from the model used in the previous report is that *missing* disabilities was no longer collapsed with the *other* disability type. To better address the challenges that missing information poses, the model included main disability type and severity level effects as well as cross-effects. In the previous report, only a full set of cross-effects was employed.

The nation-based model was estimated using data from all jurisdictions (i.e. all 50 states plus the District of Columbia), and the estimated effects of the independent variables did not change across jurisdictions. As discussed previously, under this approach the student-level benchmark for a given student profile was the same in all jurisdictions. Under the jurisdiction-specific approach, in contrast, the model was estimated separately for each state using only that state's data. This led to different student-level benchmarks for a given student profile estimated in each state.

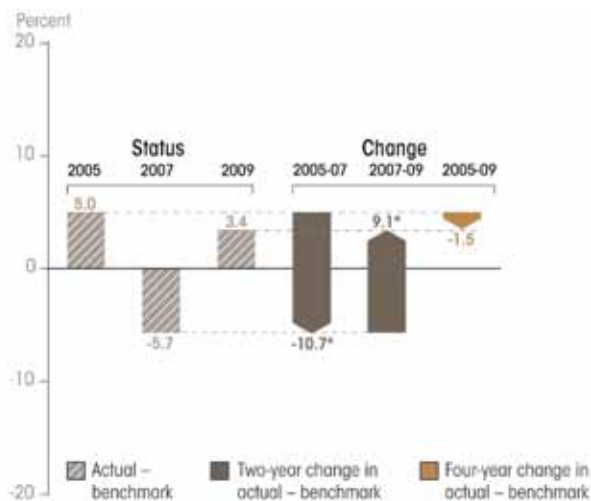
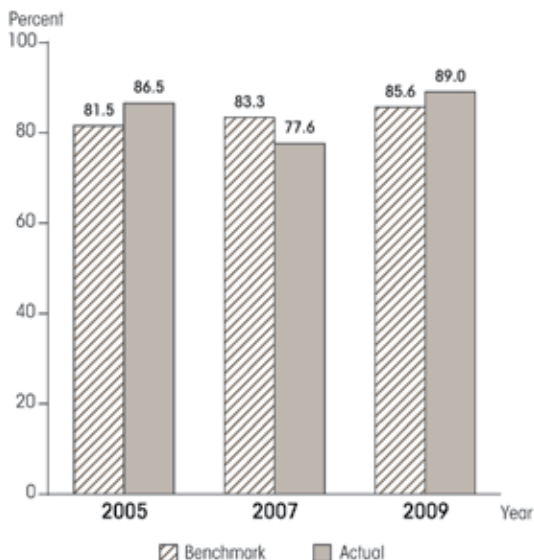
For a full description of the methodology, see Kitmitto and Bandeira de Mello (2009): <http://nces.ed.gov/nationsreportcard/pubs/studies/2009453.asp>.

For a full description of changes in the methodology used for this report see: <http://nces.ed.gov/nationsreportcard/studies/inclusion/>.

Example

Nation-Based Approach for State A

Figure 8. Example results for State A using the nation-based approach



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

NOTE: Significance tests were performed only for the change measures. Detail may not sum to totals because of rounding.

The figure on the left shows the benchmark and actual inclusion rates for State A in 2005, 2007, and 2009. The actual inclusion rate for State A was:

- 86.5 percent in 2005
- 77.6 percent in 2007
- 89.0 percent in 2009

Based on State A's population of students with disabilities, the nation-based model predicted benchmark inclusion rate for State A was:

- 81.5 percent in 2005
- 83.3 percent in 2007
- 85.6 percent in 2009

A state's benchmark inclusion rate changes if the demographics of the students with disabilities in the state changes.

The figure on the right shows the relative inclusiveness (status measure) of State A in 2005, 2007, and 2009 as well as the change in inclusiveness (the change measure) from 2005 to 2007,

2007 to 2009, and 2005 to 2009. For the nation-based approach, the difference between state-level actual and benchmark inclusion rates can be used to compare the relative inclusiveness of State A to other states because the same 2005 student-level benchmarks were used for all states. The difference between state-level actual and benchmark inclusion rates, or the status, for State A, was:

- 5.0 in 2005
- -5.7 in 2007
- 3.4 in 2009

Change in inclusiveness can be measured by change in this difference between state-level actual and benchmark inclusion rates from one year to the next. For State A, the change in inclusiveness was:

- $(-5.7) - (5.0) = -10.7$ for 2005 to 2007
- $(3.4) - (-5.7) = 9.1$ for 2007 to 2009
- $(3.4) - (5.0) = -1.5$ for 2005 to 2009

In this example, the changes from 2005 to 2007 and from 2007 to 2009 were statistically different from zero at the ($p < .05$) level.

Jurisdiction-Specific Approach

A very similar figure could be made to demonstrate the jurisdiction-specific approach. The major difference in the figure would be in 2005. As in the nation-based approach, individual-level benchmarks were set using 2005 data. Since benchmarks were set based on only State A's 2005 data (as opposed to the nation's 2005 data under the nation-based approach), the state-level benchmark under the jurisdiction-specific approach for State A exactly equaled its actual inclusion rate in 2005. This was true for all states: under the jurisdiction-specific approach, the 2005 actual and benchmark inclusion rates were equal.

Additionally, because individual-level benchmarks differed by state, the difference between a state's actual and benchmark inclusion rate under the jurisdiction-specific approach could not be used to compare the relative inclusiveness between states in a given year as was done under the nation-based approach. The benchmarks in the jurisdiction-specific approach could only be used for measuring change in a state from one administration to the next.

Results 2007-09

In the table below, each 2007-09 change result is categorized as an increase, no change, or a decrease in inclusiveness by grade and subject. The number of occurrences across grades and subjects is provided in the second column of table 3. Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as “no change.”

Table 3. Number of states for each type of inclusiveness change by subject and grade: 2007-09

Type of inclusiveness change	Total number of instances	Mathematics		Reading	
		Grade 4	Grade 8	Grade 4	Grade 8
Increase	55	10	16	13	16
No change	145	40	34	36	35
Decrease	4	1	1	2	0

NOTE: Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as “no change.”

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics and Reading Assessments.

- Over 2007-09, most jurisdictions (34 to 40 out of 51 depending on the grade and subject area) did not have a change in inclusion rates.
- Among those jurisdictions that did have a change over 2007-09 in a given grade or subject, most increased in inclusiveness (minimum of 13 out of 15 in grade 4 reading; maximum of 16 out of 16 in grade 8 reading).

Full results are provided at: <http://nces.ed.gov/nationsreportcard/studies/inclusion/>.

Nation-Based Results

The figures on the following pages display and summarize change information for 2007 to 2009, as well as the corresponding status information for 2007 as the relevant context for that change. In figures such as figure 9:

- States are placed in a column according to whether each had a decrease, no change, or an increase in inclusiveness from 2007 to 2009.
- States are placed in a row according to their 2007 status measure. The status measures for all states are grouped into four groups with roughly equal numbers, or quartiles. The status measures are plotted on the vertical axis, with more inclusive states in the top quartile and less inclusive states in the bottom quartile.

A state's placement in the figure indicates its change from 2007 to 2009 as well as its starting point status measure in 2007 which provides context for understanding the change. States that were more inclusive in 2007 (in higher quartiles), such as State A and B, are expected to have less potential to increase inclusion and, hence, there is less expectation for those states to do so. States that were less inclusive in 2007 (in the lower quartiles), such as State C, D, or to a lesser extent, E, however, are expected to have more potential to increase inclusion and, hence, there is greater expectation for states to do so.

Comparison to Jurisdiction-Specific Approach

The jurisdiction-specific approach provides a check on the nation-based results. In figures such as figure 10, a comparison between the nation-based change measure and the jurisdiction-specific change measure is provided. In these figures, states are placed in columns according to their nation-based change result (decrease, no change, or increase) and in rows according to jurisdiction-specific change results. Cells on the highlighted diagonal, such as States A, B, or D, have the same result for both approaches. Cells off the diagonal, such as State E, have different results for the two approaches. In the results that follow, all differences were cases in which the nation-based approach found a change and the jurisdiction-specific approach found no change.

Figure 9. Example Results Table I

Starting Quartile 2007		Decrease	No change	Increase
Less inclusive	4	A	B	
	3			
	2			E
	1		C	D
Total				

Figure 10. Example Results Table II

		Nation-based		
		Decrease	No change	Increase
Jurisdiction-specific	Increase			D
	No change		B,C	E
	Decrease	A		

Mathematics Grade 4—Results 2007-09

Figure 11. State change in inclusiveness by starting inclusiveness for nation-based model, mathematics grade 4: 2007-09

Starting Quartile 2007		Decrease	No change	Increase	Total
More inclusive	4	SD	AK, CO, CT, HI, IA, MS, NH, NY, RI, VT, WV, WY		13
	3		AL, FL, ID, KY, LA, MN, NC, NJ, OR, PA, SC, WA, WI		13
	2		CA, GA, IN, KS, MA, MT, NE, NM, NV, UT	AR, AZ, ME	13
Less inclusive	1		MD, MI, ND, OH, OK	DC, DE, IL, MO, TN, TX, VA	12
Total		1	40	10	

- Most states (40) had no change in inclusiveness under either approach (jurisdiction-specific change reported below in figure 12).
- Ten states had increases in inclusiveness under the nation-based approach.
 - All of those 10 states were in the bottom two quartiles of 2007 inclusiveness.
 - Six of those 10 states also had increases under the jurisdiction-specific approach (below).
- One state had decreases in inclusiveness under both approaches (jurisdiction-specific change reported below): South Dakota.
 - South Dakota was in the top quartile of inclusiveness in 2007.

Figure 12. Comparison of state change in inclusiveness for nation-based and jurisdiction-specific models, mathematics grade 4: 2007-09

		Nation-based			Total
		Decrease	No change	Increase	
Jurisdiction-specific	Increase			AR, DC, IL, ME, TN, TX	6
	No change		AL, AK, CA, CO, CT, FL, GA, HI, ID, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, UT, VT, WA, WV, WI, WY	AZ, DE, MO, VA	44
	Decrease	SD			1
Total		1	40	10	

- In 47 of the 51 states, the nation-based and jurisdiction-specific approaches were consistent regarding change in inclusiveness.
- In the four cases for which the approaches were inconsistent with each other, the nation-based approach found a change in inclusiveness and the jurisdiction-specific approach did not.
 - In all four of those cases the nation-based approach found increases.

NOTE: See the appendix for starting point, nation-based, and jurisdiction-specific results. Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change." The note applies to all figures on this page.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Mathematics Grade 8—Results 2007-09

Figure 13. State change in inclusiveness by starting inclusiveness for nation-based model, mathematics grade 8: 2007-09

Starting Quartile 2007		Decrease	No change	Increase	Total
More inclusive	4	CT	CO, FL, HI, ID, MN, NC, NH, NM, RI, WV, WY	AR	13
	3		AL, CA, IA, MT, NE, NJ, NY, OR, PA, SD, UT	VT, WI	13
	2		AK, IN, KS, MI, MO, MS, NV, OH	AZ, IL, LA, ME, WA	13
Less inclusive	1		MD, ND, SC, TX	DC, DE, GA, KY, MA, OK, TN, VA	12
Total		1	34	16	

- Most states (34) had no change in inclusiveness under either approach (jurisdiction-specific change reported below in figure 14).
- Sixteen states had increases in inclusiveness under the nation-based approach.
 - Nine of those 16 also had increases under the jurisdiction-specific approach (below).
- One state had a decrease in inclusiveness under the nation-based approach: Connecticut.
 - Connecticut was in the top quartile of inclusiveness in 2007.
 - Connecticut did not show a decrease under the jurisdiction-specific approach (below).

Figure 14. Comparison of state change in inclusiveness for nation-based and jurisdiction-specific models, mathematics grade 8: 2007-09

		Nation-based			Total
		Decrease	No change	Increase	
Jurisdiction-specific	Increase			DE, DC, GA, IL, ME, MA, TN, VT, VA	9
	No change	CT	AL, AK, CA, CO, FL, HI, ID, IN, IA, KS, MD, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OR, PA, RI, SC, SD, TX, UT, WV, WY	AZ, AR, KY, LA, OK, WA, WI	42
	Decrease				0
Total		1	34	16	

- In 43 of the 51 states, the nation-based and jurisdiction-specific approaches were consistent regarding change in inclusiveness.
- In the eight cases for which the approaches were inconsistent with each other, the nation-based approach found a change in inclusiveness and the jurisdiction-specific approach did not.
 - In one of the eight cases the nation-based approach found a decrease.
 - In the remaining seven of the eight cases the nation-based approach found increases.

NOTE: See the appendix for starting point, nation-based, and jurisdiction-specific results. Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change." The note applies to all figures on this page.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Reading Grade 4—Results 2007-09

Figure 15. State change in inclusiveness by starting inclusiveness for nation-based model, reading grade 4: 2007-09

Starting Quartile 2007		Decrease	No change	Increase	Total
More inclusive	4	WV	AK, AL, CO, CT, ID, IN, MA, NC, NH, RI	LA, WY	13
	3		AZ, CA, FL, IA, MO, OR, PA, SC, WA	HI, MN, MS, VT	13
	2		KS, MI, MT, NE, NJ, NV, NY, OH, SD, UT, WI	IL, ME	13
Less inclusive	1	MD	DC, KY, ND, OK, TN, TX	AR, DE, GA, NM, VA	12
Total		2	36	13	

- Most states (36) had no change in inclusiveness under either approach (jurisdiction-specific change reported below in figure 16).
- Thirteen states had increases in inclusiveness under the nation-based approach.
 - Those 13 states varied in 2007 starting point inclusiveness, with 6 states in the top two quartiles and 7 states in the bottom two quartiles.
 - Six of those 13 states also had increases under the jurisdiction-specific approach (below).
- Two states had decreases in inclusiveness under the nation-based approach: one from the top quartile of 2007 inclusiveness (West Virginia) and one from the bottom quartile of 2007 inclusiveness (Maryland).
 - None had decreases under the jurisdiction-specific approach (below).

Figure 16. Comparison of state change in inclusiveness for nation-based and jurisdiction-specific models, reading grade 4: 2007-09

		Nation-based			Total
		Decrease	No change	Increase	
Jurisdiction-specific	Increase			AR, GA, NM, VT, VA, WY	6
	No change	MD, WV	AL, AK, AZ, CA, CO, CT, DC, FL, ID, IN, IA, KS, KY, MA, MI, MO, MT, NE, NV, NH, NJ, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, WA, WI	DE, HI, IL, LA, ME, MN, MS	45
	Decrease				0
Total		2	36	13	

- In 42 of the 51 states, the nation-based and jurisdiction-specific approaches were consistent regarding change in inclusiveness.
- In the nine cases for which the approaches were inconsistent with each other, the nation-based approach found a change in inclusiveness and the jurisdiction-specific approach did not.
 - In two of the nine cases the nation-based approach found decreases.
 - In the remaining seven of the nine cases the nation-based approach found increases.

NOTE: See the appendix for starting point, nation-based, and jurisdiction-specific results. Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change." The note applies to all figures on this page.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Reading Grade 8—Results 2007-09

Figure 17. State change in inclusiveness by starting inclusiveness for nation-based model, reading grade 8: 2007-09

Starting Quartile 2007		Decrease	No change	Increase	Total
More inclusive	4		AK, CA, CO, CT, FL, HI, LA, NC, NH, OR, WV, WY	RI	13
	3		IL, IA, IN, MN, MO, MA, NE, NV	AL, DE, ID, PA, VT	13
	2		KS, MI, MT, NJ, NY, OH, UT, WI	AR, AZ, ME, MS, WA	13
Less inclusive	1		DC, KY, MD, ND, OK, SC, TN	GA, NM, SD, TX, VA	12
Total		0	35	16	

- Most states (35) had no change in inclusiveness under either approach (jurisdiction-specific change reported below in figure 18).
- Sixteen states had increases in inclusiveness under the nation-based approach.
 - While those states were mostly concentrated in the lower two quartiles of 2007 inclusiveness, 6 of the 16 states were in the top two quartiles.
 - Nine of those 16 states also had increases under the jurisdiction-specific approach (below).
- No states had decreases in inclusiveness under either approach (jurisdiction-specific change reported below).

Figure 18. Comparison of state change in inclusiveness for nation-based and jurisdiction-specific models, reading grade 8: 2007-09

		Nation-based			Total
		Decrease	No change	Increase	
Jurisdiction-specific	Increase			AL, AR, DE, GA, ME, MS, SD, VT, VA	9
	No change		AK, CA, CO, CT, DC, FL, HI, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MO, MT, NE, NV, NH, NJ, NY, NC, ND, OH, OK, OR, SC, TN, UT, WV, WI, WY	AZ, ID, NM, PA, RI, TX, WA	42
	Decrease				0
Total		0	35	16	

- In 44 of the 51 states, the nation-based and jurisdiction-specific approaches were consistent regarding change in inclusiveness.
- In the seven cases for which the approaches were inconsistent with each other, the nation-based approach found increases in inclusiveness and the jurisdiction-specific approach did not.

NOTE: See the appendix for starting point, nation-based, and jurisdiction-specific results. Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change." The note applies to all figures on this page.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Comparison of 2005-07 and 2007-09 Change —Mathematics

These figures provide a comparison of the patterns of change in inclusiveness on the NAEP mathematics assessment between the two periods of the study: from 2005 to 2007 and from 2007 to 2009.

Figure 19. Comparison of state change in inclusiveness between 2005-07 and change between 2007-09 for nation-based model, in mathematics, by grade

Grade 4		2005-07 Change			Total
		Decrease	No change	Increase	
2007-09 Change	Increase	IL, MO, TN	AZ, AR, DC, ME, TX, VA	DE	10
	No change	ID, IN, KS, MD, NM, ND, OK, UT, WI	AL, AK, CA, CO, CT, FL, GA, HI, IA, KY, LA, MA, MI, MN, MT, NE, NV, NH, NJ, NY, NC, OH, OR, PA, RI, WA, WV, WY	MS, SC, VT	40
	Decrease		SD		1
	Total	12	35	4	

- Of the 12 states that had decreases over the 2005-07 period, 3 had increases over the 2007-09 period.
- One state had consistent increases over both periods: Delaware.

Grade 8		2005-07 Change			
		Decrease	No change	Increase	Total
2007-09 Change	Increase	DC, GA, IL, KY, ME, MA, OK, TN, VA, WA	AZ, AR, LA, VT, WI	DE	16
	No change	AL, AK, IN, MD, MO, NE, NH, ND, OR, WY	CA, CO, FL, HI, ID, IA, KS, MI, MN, MS, MT, NV, NJ, NM, NY, NC, OH, PA, RI, SC, SD, TX, UT, WV		34
	Decrease			CT	1
Total		20	29	2	

- Of the 20 states that had decreases over the 2005-07 period, 10 states had increases over the 2007-09 period.
- One state had consistent increases over both periods: Delaware.

NOTE: Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change."

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Comparison of 2005-07 and 2007-09 Change —Reading

These figures provide a comparison of the patterns of change in inclusiveness on the NAEP reading assessment between the two periods of the study: from 2005 to 2007 and from 2007 to 2009.

Figure 20. Comparison of state change in inclusiveness between 2005-07 and change between 2007-09 for nation-based model, in reading, by grade

Grade 4		2005-07 Change			Total
		Decrease	No change	Increase	
2007-09 Change	Increase	GA, HI, MN, NM, WY	AR, IL, ME, VT	DE, LA, MS, VA	13
	No change	AL, DC, KS, NH, NJ, ND, OK, RI, SD, UT, WA, WI	AK, AZ, CA, CO, CT, FL, ID, IN, IA, KY, MA, MT, NE, NV, NY, NC, OH, OR, PA, TN, TX	MI, MO, SC	36
	Decrease	MD		WV	2
Total		18	25	8	

- Of the 18 states that had decreases over the 2005-07 period, 5 had increases over the 2007-09 period.
 - One state, Maryland, had decreases over both periods.
- Four states had consistent increases over both periods: Delaware, Louisiana, Mississippi, and Virginia.

Grade 8		2005-07 Change			Total
		Decrease	No change	Increase	
2007-09 Change	Increase	AL, AZ, AR, GA, ID, NM, PA, RI, SD, VT, WA	ME, MS, TX, VA	DE	16
	No change	DC, IA, KS, MD, MN, NE, NH, NJ, ND, OK, UT, WI, WY	AK, CA, CO, CT, FL, HI, IL, IN, KY, MA, MI, MT, NV, NY, NC, OH, OR, SC, TN	LA, MO, WV	35
	Decrease				0
Total		24	23	4	

- Of the 24 states that had decreases over the 2005-07 period, 11 states had increases over the 2007-09 period.
- One state had consistent increases over both periods: Delaware.

NOTE: Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as "no change."

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Consistency of Change

Changes in inclusion practices are expected to be consistent within a state across subjects and grades. Hence, a change in inclusion in one subject for one grade would be expected to be mirrored in other subjects and grades. For example, for 2007 to 2009, if State A were more inclusive on the NAEP mathematics grade 4 assessment, then one might expect State A to also be more inclusive in the other subjects and grades over the same time period.

A summary of consistency across grades and subjects (grades 4 and 8, mathematics and reading) is provided in the table below for each time period of this study: 2005-07, 2007-09, and 2005-09. States that are in the same row for each time period—that is, states that have consistent inclusion rate change across time as well as across grades and subjects—are listed in the last column.

- Consistent increases – had increases in inclusiveness in all grades and subjects for that time period
- Partial increases – had increases in inclusiveness in at least one grade or subject (but not in all) with no decreases in any grade/subject for that time period
- No change – had no change in inclusiveness for any grade or subject for that time period
- Mixed change – had at least one increase and at least one decrease among the grades and subjects for that time period
- Partial decreases – had decreases in inclusiveness in at least one grade or subject (but not in all) with no increases in any grade/subject for that time period
- Consistent decreases – had decreases in inclusiveness in all grades and subjects for that time period

Table 4. Consistency of inclusion rate change among states across grades and subjects: 2005-07, 2007-09, and 2005-09

Category	2005-07	2007-09	2005-09	Consistent across all time periods
Consistent increases	1	4	4	DE
Partial increases	6	23	12	LA, MS
No change	9	20	13	CA, CO, FL, NV, NC, OH
Mixed change	3	1	0	—
Partial decreases	29	3	17	MD
Consistent decreases	3	0	5	—

— No states in the category.

NOTE: Increases and decreases are changes that are statistically different from zero ($p < .05$). Changes that are not statistically different from zero are designated as “no change.” The 2007-09 column is bolded because 2007-09 results are the focus of this report.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics and Reading Assessments.

- For 2007-09:
 - Four states (Arkansas, Delaware, Maine, Virginia) had increases in all grades and subjects.
 - Other than those four, 23 states had increases in at least one grade/subject (with no decreases in any grade/subject).
 - No state had decreases in all grades and subjects.
- Across all time periods:
 - Delaware had consistent increases in inclusiveness in all grades and subjects.
 - Delaware also had the lowest status measure (measure of inclusiveness relative to other states) in 2005 in all grades and subjects.
 - Six states had no changes across all time periods.

Table 5. Change in inclusiveness using the nation-based approach by grade, subject, and time period, by state: 2005-07, 2007-09, and 2005-09

State	2005-07				2007-09				2005-09			
	M4	M8	R4	R8	M4	M8	R4	R8	M4	M8	R4	R8
Alabama		-	-	-				+		-	-	
Alaska		-								-		
Arizona				-	+	+		+	+	+		
Arkansas				-	+	+	+	+			+	+
California												
Colorado												
Connecticut		+				-						
Delaware	+	+	+	+	+	+	+	+	+	+	+	+
District of Columbia		-	-	-	+	+					-	-
Florida												
Georgia		-	-	-		+	+	+		-		
Hawaii			-				+					
Idaho	-			-				+	-			
Illinois		-			+	+	+				+	
Indiana	-	-							-	-	-	-
Iowa				-								-
Kansas	-		-	-					-		-	-
Kentucky		-				+			-			
Louisiana			+	+		+	+	+	+	+	+	+
Maine		-			+	+	+	+	+	+	+	+
Maryland	-	-	-	-			-		-	-	-	-
Massachusetts		-				+						
Michigan			+								+	
Minnesota			-	-			+					-
Mississippi	+		+				+	+	+	+	+	+
Missouri	-	-	+	+	+						+	+
Montana										-		
Nebraska		-		-					-	-		-
Nevada												
New Hampshire		-	-	-						-		-
New Jersey			-	-							-	-
New Mexico	-		-	-			+	+	-	-		
New York									+			
North Carolina												
North Dakota	-	-	-	-					-	-	-	-
Ohio												
Oklahoma	-	-	-	-		+			-	-	-	-
Oregon		-									+	
Pennsylvania				-				+				
Rhode Island			-	-				+			-	
South Carolina	+		+						+			
South Dakota			-	-	-			+	-		-	-
Tennessee	-	-			+	+						
Texas					+			+	+			
Utah	-		-	-					-	-	-	-
Vermont	+			-		+	+	+	+	+	+	+
Virginia		-	+		+	+	+	+	+		+	+
Washington		-	-	-		+		+				
West Virginia			+	+			-			+	+	+
Wisconsin	-		-	-		+						
Wyoming		-	-	-			+				-	

NOTE: M = mathematics, R = reading, 4 = grade 4, 8 = grade 8; + = significant increase, - = significant decrease, blank cell = no significant change.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics and Reading Assessments.

Endnotes and References

Endnotes

¹ Students with disabilities who are covered by the federal Individuals with Disabilities Education Act (IDEA) are required to have an IEP. The IEP is developed by a committee to provide guidance concerning the student's instruction. The IEP is a legal document. Some students with disabilities are not covered by IDEA but are covered under Section 504 of the Rehabilitation Act. This legislation provides individuals with disabilities such as a physical or mental impairment with protection against discrimination in all federally assisted programs and activities.

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Appendices

Appendix A. Mathematics Results—2007-09

Table A-1. State starting point inclusiveness and change in inclusiveness for the nation-based and jurisdiction-specific approaches, mathematics: 2007-09

Starting Quartile 2007		Mathematics Grade 4			Mathematics Grade 8				
		Starting point	Nation-based	Jurisdiction-specific	Starting point	Nation-based	Jurisdiction-specific		
		State			State				
MORE INCLUSIVE	4	Alaska	8.6	-0.6	-0.8	Connecticut	10.2	-5.5*	-7.6
		South Dakota	6.8	-5.2*	-5.9*	Colorado	9.1	-4.9	-3.9
		Wyoming	6.6	0.4	1.6	Hawaii	8.0	0.3	-0.8
		Rhode Island	6.3	-0.9	1.1	Idaho	7.6	-1.5	-1.8
		Hawaii	6.2	-0.6	-1.5	West Virginia	7.5	0.3	0.2
		Mississippi	6.0	-0.2	1.6	New Mexico	6.3	-4.8	-3.7
		Iowa	5.9	-0.8	-4.4	North Carolina	5.6	0.8	0.1
		Colorado	5.9	0.8	-0.1	Wyoming	4.9	1.4	3.5
		New York	5.5	2.8	3.0	Minnesota	4.9	-2.1	-2.2
		Vermont	5.2	1.7	2.9	New Hampshire	4.0	1.2	1.5
3	Connecticut	5.1	-3.7	0.3	Rhode Island	3.9	2.2	1.2	
	New Hampshire	5.1	1.3	0.7	Arkansas	3.5	6.3*	8.1	
	West Virginia	4.4	1.4	-1.8	Florida	3.2	1.9	2.6	
	Oregon	4.3	-2.1	-0.2	South Dakota	2.8	0.1	1.2	
	Alabama	4.3	2.8	1.6	Oregon	2.4	0.2	3.8	
	North Carolina	3.9	-3.0	-3.4	Vermont	2.3	6.4*	6.6*	
	New Jersey	3.6	-1.3	-2.8	New Jersey	2.3	1.6	3.1	
	Pennsylvania	3.3	-1.6	-1.5	Iowa	2.2	-1.0	-0.1	
	Florida	3.3	0.4	2.1	Nebraska	0.6	-5.0	-5.3	
	Idaho	3.2	1.4	3.1	Utah	0.5	-6.4	-3.8	
2	Minnesota	2.9	1.5	1.3	Alabama	0.1	5.2	9.2	
	South Carolina	2.5	-1.3	-1.4	California	0.1	3.5	5.7	
	Louisiana	2.4	2.3	-1.3	Montana	0.0	-1.5	-0.3	
	Kentucky	1.7	-3.3	-3.7	Pennsylvania	-0.8	2.0	0.6	
	Wisconsin	1.7	2.8	3.2	New York	-1.2	4.8	5.4	
	Washington	1.6	2.6	2.6	Wisconsin	-2.2	7.9*	7.6	
	Nevada	1.3	-2.4	0.9	Louisiana	-2.5	12.7*	12.4	
	Montana	1.1	1.5	2.6	Kansas	-2.5	1.1	2.4	
	Maine	1.0	7.7*	8.1*	Mississippi	-4.1	4.6	5.4	
	Indiana	0.7	-1.6	-1.4	Nevada	-4.2	1.7	5.8	
1	New Mexico	0.5	-1.4	-3.3	Arizona	-4.7	10.7*	8.5	
	Utah	0.2	-0.4	-2.2	Maine	-6.1	15.0*	14.6*	
	California	0.1	-1.1	-1.1	Washington	-6.2	9.4*	9.0	
	Arkansas	-0.1	7.1*	8.4*	Michigan	-7.7	3.7	5.2	
	Nebraska	-0.4	-0.9	-0.4	Missouri	-8.0	3.5	1.5	
	Arizona	-0.6	7.6*	9.1	Illinois	-9.0	10.7*	12.7*	
	Georgia	-0.7	2.9	1.7	Alaska	-11.1	6.5	3.1	
	Kansas	-1.7	-0.8	-2.6	Indiana	-12.8	0.0	-1.4	
	Massachusetts	-4.7	2.5	2.6	Ohio	-14.4	5.4	8.8	
	North Dakota	-5.4	-0.3	-2.7	Delaware	-14.7	25.9*	24.7*	
LESS INCLUSIVE	Missouri	-5.6	6.2*	5.6	North Dakota	-15.4	2.7	5.4	
	Illinois	-5.7	9.1*	11.2*	Virginia	-16.8	15.2*	13.6*	
	Delaware	-6.3	8.9*	8.0	Kentucky	-17.0	9.9*	10.5	
	Michigan	-6.5	3.5	2.0	South Carolina	-18.9	7.2	5.1	
	Ohio	-6.9	7.2	5.4	Texas	-20.2	4.9	4.2	
	Virginia	-7.8	10.6*	7.2	Massachusetts	-22.0	18.2*	16.4*	
	Maryland	-9.0	-2.8	-3.9	Tennessee	-25.1	16.5*	16.5*	
	District of Columbia	-12.9	7.7*	9.9*	Georgia	-27.1	21.7*	20.1*	
	Oklahoma	-15.6	4.7	3.5	District of Columbia	-29.1	21.4*	25.5*	
	Tennessee	-16.8	12.5*	15.2*	Oklahoma	-30.7	9.2*	11.5	
Texas	-21.0	12.6*	12.1*	Maryland	-33.7	1.1	-0.9		

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

NOTE: Significance tests were performed only for the change measures.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Appendix B. Reading Results—2007-09

Table B-1. State starting point inclusiveness and change in inclusiveness for the nation-based and jurisdiction-specific approaches, reading: 2007-09

Starting Quartile 2007		Reading Grade 4			Reading Grade 8				
		State	Starting point	Nation- based	Jurisdiction- specific	State	Starting point	Nation- based	Jurisdiction- specific
4	MORE INCLUSIVE	West Virginia	17.4	-4.0*	-5.5	West Virginia	14.1	-0.7	2.1
		North Carolina	12.5	-0.8	1.0	Alaska	12.0	2.9	1.9
		Connecticut	9.9	-4.5	-2.7	Connecticut	11.9	-4.8	-2.2
		Alaska	9.8	6.3	6.8	Oregon	11.0	-1.1	-2.3
		Rhode Island	9.0	1.0	-0.4	Hawaii	9.5	3.0	2.4
		Wyoming	8.7	7.2*	8.9*	North Carolina	7.7	2.4	3.3
		Colorado	8.1	-2.3	-2.5	Rhode Island	6.1	4.2*	3.1
		Louisiana	7.2	8.2*	10.1	Wyoming	5.9	1.3	2.5
		New Hampshire	6.8	4.3	4.5	Florida	5.8	-0.5	0.8
		Alabama	6.4	5.5	7.2	Louisiana	5.1	8.9	10.8
3		Indiana	5.5	-7.5	-3.8	New Hampshire	4.9	2.2	2.9
		Idaho	5.5	-2.1	1.2	Colorado	3.3	1.9	1.2
		Massachusetts	5.4	2.6	1.6	California	2.9	2.4	3.8
		Hawaii	4.3	12.2*	7.8	Missouri	2.8	-0.4	-1.4
		Oregon	4.3	3.4	3.4	Illinois	1.2	2.1	0.6
		Missouri	4.2	1.7	3.7	Alabama	1.0	11.2*	11.8*
		Florida	3.3	3.8	5.9	Minnesota	-0.1	4.3	5.1
		California	2.7	-1.2	-0.5	Indiana	-0.2	-8.7	-8.2
		Minnesota	2.4	8.8*	8.0	Pennsylvania	-0.8	8.6*	7.4
		Iowa	2.3	-1.1	-3.2	Idaho	-0.8	7.9*	8.0
2		Mississippi	1.9	7.3*	9.5	Vermont	-1.1	12.2*	12.3*
		Pennsylvania	1.9	7.2	7.5	Massachusetts	-1.2	6.9	7.5
		South Carolina	1.6	-5.3	-6.6	Nevada	-2.0	7.3	7.6
		Washington	1.4	4.4	6.0	Delaware	-2.1	9.3*	10.8*
		Arizona	1.4	5.2	6.9	Nebraska	-2.1	-6.6	-6.3
		Vermont	1.2	11.5*	11.2*	Iowa	-2.8	-1.2	-0.1
		New York	0.5	6.2	6.2	Maine	-3.9	11.9*	11.0*
		Wisconsin	0.4	5.3	5.5	Montana	-4.0	2.1	0.1
		Nevada	0.0	2.4	4.0	Wisconsin	-4.2	6.0	4.0
		Nebraska	-0.9	3.1	3.4	Kansas	-4.5	0.3	-0.3
1	LESS INCLUSIVE	Maine	-1.0	10.0*	8.6	New York	-6.5	-1.2	-3.2
		Montana	-1.7	3.8	2.9	Washington	-6.9	12.8*	10.4
		Michigan	-2.0	2.5	0.3	Arizona	-7.2	14.8*	12.8
		Illinois	-3.3	10.9*	11.0	Utah	-7.8	-2.8	-3.8
		New Jersey	-5.1	-7.3	-8.1	New Jersey	-8.4	2.8	4.4
		South Dakota	-5.8	-3.6	-2.0	Michigan	-9.5	5.1	4.5
		Kansas	-7.9	6.6	4.1	Arkansas	-10.2	24.9*	26.8*
		Utah	-8.2	-1.5	-2.4	Ohio	-11.9	-0.3	-2.6
		Ohio	-10.6	2.1	4.0	Mississippi	-11.9	19.4*	20.2*
		Oklahoma	-11.3	-3.9	-1.3	New Mexico	-12.3	9.2*	6.0
		Delaware	-12.3	6.4*	5.1	Oklahoma	-12.7	7.0	6.9
		Virginia	-12.8	17.8*	12.9*	South Carolina	-14.0	-1.0	-0.1
		Kentucky	-12.9	-0.4	0.4	Virginia	-15.4	20.2*	18.5*
		Arkansas	-14.7	34.0*	34.1*	Texas	-16.4	8.0*	5.5
		Maryland	-16.2	-7.1*	-5.0	Kentucky	-18.0	0.6	0.5
		New Mexico	-16.5	13.3*	15.0*	Maryland	-18.7	-7.2	-6.0
		North Dakota	-18.3	2.6	-2.0	South Dakota	-20.3	15.1*	13.9*
		Texas	-19.5	7.4	3.2	Tennessee	-22.0	-2.0	-3.9
		Georgia	-22.6	16.6*	14.1*	Georgia	-23.1	18.9*	15.6*
		Tennessee	-22.8	-0.3	-3.3	North Dakota	-26.2	1.9	1.3
District of Columbia	-31.5	0.6	-0.1	District of Columbia	-30.1	-6.1	-1.3		

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

NOTE: Significance tests were performed only for the change measures.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Appendix C. Supporting Tables

Table C-1. Actual inclusion rate, nation-based benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, mathematics grade 4: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	88.3	84.0	4.3	90.4	83.3	7.1
Alaska	91.3	82.7	8.6	93.3	85.3	8.0
Arizona	83.4	84.0	-0.6	89.8	82.8	7.0
Arkansas	79.8	79.9	-0.1	89.3	82.3	7.0
California	83.9	83.9	0.1	85.1	86.2	-1.1
Colorado	88.2	82.3	5.9	87.1	80.3	6.8
Connecticut	89.7	84.5	5.1	87.3	85.9	1.4
Delaware	73.1	79.4	-6.3	79.7	77.1	2.7
District of Columbia	66.3	79.2	-12.9	74.1	79.3	-5.2
Florida	88.3	85.0	3.3	90.1	86.5	3.7
Georgia	83.5	84.2	-0.7	88.8	86.7	2.2
Hawaii	90.5	84.3	6.2	88.7	83.1	5.6
Idaho	86.3	83.1	3.2	89.9	85.2	4.6
Illinois	77.6	83.3	-5.7	89.0	85.6	3.4
Indiana	85.7	85.0	0.7	85.5	86.4	-1.0
Iowa	90.0	84.0	5.9	87.9	82.7	5.2
Kansas	78.9	80.7	-1.7	79.9	82.4	-2.5
Kentucky	84.2	82.5	1.7	81.1	82.7	-1.6
Louisiana	87.8	85.4	2.4	91.1	86.4	4.7
Maine	83.7	82.7	1.0	92.4	83.6	8.8
Maryland	72.7	81.7	-9.0	70.3	82.1	-11.8
Massachusetts	74.3	79.0	-4.7	77.1	79.2	-2.2
Michigan	76.1	82.6	-6.5	82.2	85.2	-3.0
Minnesota	85.9	83.1	2.9	88.8	84.5	4.3
Mississippi	92.3	86.3	6.0	92.1	86.3	5.8
Missouri	76.6	82.2	-5.6	82.6	82.0	0.6
Montana	81.7	80.6	1.1	86.5	83.9	2.6
Nebraska	85.7	86.1	-0.4	86.7	88.0	-1.2
Nevada	84.5	83.1	1.3	83.4	84.5	-1.0
New Hampshire	88.7	83.7	5.1	89.2	82.8	6.4
New Jersey	88.0	84.4	3.6	87.0	84.8	2.2
New Mexico	83.2	82.7	0.5	83.1	84.0	-0.9
New York	91.2	85.7	5.5	94.3	86.1	8.3
North Carolina	89.7	85.7	3.9	86.6	85.7	0.9
North Dakota	76.3	81.8	-5.4	77.3	83.0	-5.7
Ohio	71.5	78.5	-6.9	81.3	81.0	0.3
Oklahoma	67.8	83.4	-15.6	74.7	85.6	-10.8
Oregon	85.8	81.5	4.3	85.3	83.0	2.3
Pennsylvania	86.1	82.8	3.3	85.2	83.5	1.7
Rhode Island	91.0	84.6	6.3	91.0	85.6	5.4
South Carolina	88.1	85.7	2.5	87.8	86.6	1.1
South Dakota	92.2	85.4	6.8	87.0	85.4	1.6
Tennessee	59.4	76.2	-16.8	75.8	80.1	-4.3
Texas	62.8	83.9	-21.0	73.0	81.4	-8.4
Utah	84.4	84.2	0.2	83.5	83.7	-0.2
Vermont	86.4	81.1	5.2	89.2	82.3	6.9
Virginia	74.1	81.9	-7.8	86.3	83.4	2.8
Washington	85.7	84.1	1.6	87.3	83.1	4.2
West Virginia	91.6	87.2	4.4	91.0	85.3	5.8
Wisconsin	85.5	83.8	1.7	87.8	83.4	4.5
Wyoming	89.6	83.1	6.6	93.4	86.4	7.0

NOTE: The difference in this table (the actual inclusion rate minus the nation-based benchmark inclusion rate) is also used in the report as the status measure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Table C-2. Actual inclusion rate, nation-based benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, mathematics grade 8: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	76.8	76.7	0.1	87.1	81.8	5.3
Alaska	63.1	74.2	-11.1	74.4	78.9	-4.6
Arizona	75.3	80.0	-4.7	85.4	79.3	6.0
Arkansas	81.7	78.2	3.5	91.8	82.0	9.8
California	83.0	82.9	0.1	85.0	81.4	3.6
Colorado	87.2	78.1	9.1	84.1	79.9	4.2
Connecticut	90.7	80.5	10.2	86.5	81.9	4.6
Delaware	57.1	71.8	-14.7	85.7	74.5	11.2
District of Columbia	45.7	74.8	-29.1	68.3	76.0	-7.7
Florida	83.5	80.3	3.2	86.9	81.8	5.1
Georgia	50.2	77.3	-27.1	77.9	83.4	-5.5
Hawaii	90.8	82.8	8.0	89.5	81.2	8.3
Idaho	86.6	79.0	7.6	85.1	79.0	6.1
Illinois	65.6	74.6	-9.0	81.1	79.4	1.7
Indiana	63.8	76.6	-12.8	69.8	82.6	-12.8
Iowa	84.2	82.0	2.2	83.9	82.6	1.3
Kansas	69.5	72.0	-2.5	76.9	78.2	-1.4
Kentucky	51.5	68.5	-17.0	64.5	71.6	-7.1
Louisiana	74.1	76.6	-2.5	88.9	78.7	10.2
Maine	71.9	78.1	-6.1	88.2	79.3	8.9
Maryland	38.3	72.0	-33.7	45.2	77.8	-32.6
Massachusetts	49.4	71.5	-22.0	72.7	76.5	-3.8
Michigan	69.1	76.8	-7.7	76.6	80.5	-4.0
Minnesota	83.4	78.5	4.9	83.3	80.5	2.8
Mississippi	78.5	82.6	-4.1	83.1	82.6	0.5
Missouri	65.4	73.4	-8.0	74.6	79.1	-4.5
Montana	77.3	77.3	0.0	77.3	78.8	-1.6
Nebraska	83.0	82.4	0.6	77.4	81.7	-4.4
Nevada	73.8	78.0	-4.2	78.3	80.9	-2.5
New Hampshire	83.3	79.3	4.0	86.4	81.3	5.1
New Jersey	82.7	80.4	2.3	89.0	85.0	4.0
New Mexico	83.5	77.2	6.3	78.0	76.6	1.5
New York	79.3	80.5	-1.2	86.0	82.4	3.6
North Carolina	86.7	81.1	5.6	88.6	82.3	6.4
North Dakota	58.1	73.6	-15.4	67.9	80.7	-12.8
Ohio	53.6	68.0	-14.4	67.8	76.7	-9.0
Oklahoma	44.9	75.6	-30.7	58.8	80.3	-21.6
Oregon	78.0	75.7	2.4	80.8	78.2	2.6
Pennsylvania	77.9	78.7	-0.8	82.5	81.4	1.1
Rhode Island	88.0	84.1	3.9	90.4	84.2	6.2
South Carolina	60.2	79.0	-18.9	68.4	80.1	-11.7
South Dakota	78.3	75.5	2.8	83.5	80.5	2.9
Tennessee	47.0	72.1	-25.1	66.8	75.4	-8.6
Texas	58.5	78.7	-20.2	61.9	77.2	-15.3
Utah	77.1	76.6	0.5	72.0	77.9	-5.9
Vermont	78.0	75.6	2.3	88.8	80.1	8.7
Virginia	58.9	75.7	-16.8	76.0	77.5	-1.5
Washington	73.1	79.3	-6.2	81.6	78.5	3.2
West Virginia	88.9	81.4	7.5	89.7	81.9	7.8
Wisconsin	73.6	75.9	-2.2	85.2	79.6	5.6
Wyoming	84.7	79.8	4.9	87.1	80.7	6.3

NOTE: The difference in this table (the actual inclusion rate minus the nation-based benchmark inclusion rate) is also used in the report as the status measure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Table C-3. Actual inclusion rate, nation-based benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, reading grade 4: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	78.1	71.8	6.4	85.4	73.5	11.9
Alaska	80.9	71.1	9.8	86.1	70.0	16.1
Arizona	74.9	73.5	1.4	75.9	69.3	6.6
Arkansas	55.0	69.7	-14.7	90.7	71.4	19.3
California	77.3	74.7	2.7	75.2	73.8	1.5
Colorado	79.9	71.8	8.1	76.3	70.5	5.8
Connecticut	85.1	75.2	9.9	79.3	73.9	5.4
Delaware	46.0	58.3	-12.3	51.9	57.8	-5.9
District of Columbia	28.6	60.1	-31.5	32.2	63.1	-31.0
Florida	77.3	74.0	3.3	84.2	77.1	7.1
Georgia	43.4	65.9	-22.6	66.0	71.9	-5.9
Hawaii	77.1	72.9	4.3	86.9	70.5	16.5
Idaho	77.2	71.7	5.5	74.2	70.8	3.4
Illinois	67.5	70.8	-3.3	83.1	75.4	7.7
Indiana	77.6	72.1	5.5	74.3	76.2	-2.0
Iowa	71.2	68.9	2.3	73.0	71.8	1.3
Kansas	62.4	70.3	-7.9	68.9	70.2	-1.3
Kentucky	53.1	66.0	-12.9	53.5	66.7	-13.2
Louisiana	79.3	72.1	7.2	90.8	75.5	15.3
Maine	69.5	70.4	-1.0	76.8	67.8	9.1
Maryland	51.4	67.6	-16.2	40.2	63.5	-23.3
Massachusetts	72.1	66.6	5.4	77.4	69.4	8.0
Michigan	68.2	70.2	-2.0	73.1	72.6	0.5
Minnesota	77.1	74.6	2.4	85.7	74.4	11.3
Mississippi	77.6	75.7	1.9	86.2	76.9	9.3
Missouri	78.9	74.7	4.2	78.2	72.4	5.8
Montana	64.8	66.5	-1.7	70.9	68.9	2.1
Nebraska	72.1	73.0	-0.9	79.5	77.3	2.2
Nevada	70.1	70.1	0.0	73.9	71.4	2.5
New Hampshire	79.8	73.0	6.8	83.6	72.6	11.0
New Jersey	61.7	66.8	-5.1	55.6	68.0	-12.3
New Mexico	54.2	70.7	-16.5	68.2	71.3	-3.2
New York	72.5	72.0	0.5	78.7	72.0	6.7
North Carolina	87.6	75.1	12.5	87.0	75.3	11.7
North Dakota	46.2	64.5	-18.3	57.5	73.2	-15.7
Ohio	50.6	61.3	-10.6	58.9	67.5	-8.5
Oklahoma	58.8	70.1	-11.3	57.6	72.8	-15.2
Oregon	74.3	70.0	4.3	81.6	74.0	7.7
Pennsylvania	72.0	70.2	1.9	82.6	73.5	9.1
Rhode Island	82.9	73.9	9.0	83.4	73.3	10.0
South Carolina	73.7	72.2	1.6	69.6	73.3	-3.7
South Dakota	66.2	72.0	-5.8	60.5	70.0	-9.4
Tennessee	37.0	59.8	-22.8	38.2	61.3	-23.1
Texas	51.7	71.2	-19.5	56.7	68.7	-12.1
Utah	62.8	71.0	-8.2	62.3	72.0	-9.7
Vermont	67.0	65.8	1.2	83.1	70.5	12.7
Virginia	55.5	68.3	-12.8	73.4	68.5	4.9
Washington	72.5	71.1	1.4	78.1	72.3	5.8
West Virginia	91.0	73.7	17.4	87.6	74.3	13.3
Wisconsin	72.4	72.0	0.4	77.6	71.9	5.7
Wyoming	78.6	69.9	8.7	89.7	73.8	15.9

NOTE: The difference in this table (the actual inclusion rate minus the nation-based benchmark inclusion rate) is also used in the report as the status measure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Table C-4. Actual inclusion rate, nation-based benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, reading grade 8: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	74.2	73.2	1.0	86.7	74.5	12.2
Alaska	84.1	72.1	12.0	89.8	74.9	14.9
Arizona	67.3	74.4	-7.2	79.2	71.6	7.6
Arkansas	62.1	72.3	-10.2	88.0	73.3	14.6
California	80.3	77.5	2.9	83.1	77.9	5.2
Colorado	78.1	74.7	3.3	77.1	71.8	5.3
Connecticut	87.0	75.0	11.9	86.1	78.9	7.2
Delaware	62.6	64.7	-2.1	74.3	67.1	7.2
District of Columbia	33.6	63.7	-30.1	33.4	69.7	-36.2
Florida	83.5	77.6	5.8	83.9	78.6	5.3
Georgia	45.0	68.0	-23.1	70.0	74.1	-4.2
Hawaii	87.6	78.1	9.5	88.6	76.1	12.5
Idaho	74.9	75.8	-0.8	80.2	73.1	7.1
Illinois	72.4	71.2	1.2	78.9	75.5	3.3
Indiana	70.9	71.1	-0.2	65.2	74.1	-8.9
Iowa	71.7	74.5	-2.8	72.3	76.2	-4.0
Kansas	65.9	70.4	-4.5	66.1	70.3	-4.2
Kentucky	42.4	60.4	-18.0	46.2	63.6	-17.4
Louisiana	80.1	74.9	5.1	88.5	74.5	14.1
Maine	67.9	71.8	-3.9	80.7	72.7	8.0
Maryland	47.8	66.6	-18.7	44.5	70.5	-26.0
Massachusetts	68.7	69.9	-1.2	78.9	73.3	5.7
Michigan	63.4	73.0	-9.5	70.6	74.9	-4.4
Minnesota	73.2	73.3	-0.1	78.9	74.8	4.2
Mississippi	63.2	75.1	-11.9	84.1	76.6	7.5
Missouri	76.1	73.3	2.8	76.5	74.1	2.4
Montana	69.2	73.2	-4.0	70.5	72.3	-1.9
Nebraska	73.8	75.9	-2.1	63.6	72.3	-8.7
Nevada	69.5	71.6	-2.0	83.5	78.2	5.3
New Hampshire	80.7	75.8	4.9	83.7	76.5	7.2
New Jersey	64.7	73.1	-8.4	68.0	73.6	-5.6
New Mexico	60.5	72.8	-12.3	65.7	68.9	-3.1
New York	66.8	73.4	-6.5	66.5	74.2	-7.7
North Carolina	83.2	75.5	7.7	86.4	76.3	10.1
North Dakota	38.7	65.0	-26.2	46.3	70.6	-24.3
Ohio	50.9	62.7	-11.9	57.1	69.3	-12.2
Oklahoma	59.3	72.0	-12.7	71.3	77.0	-5.7
Oregon	81.5	70.6	11.0	81.8	71.9	9.9
Pennsylvania	73.8	74.6	-0.8	84.1	76.3	7.9
Rhode Island	85.3	79.1	6.1	89.5	79.2	10.3
South Carolina	57.2	71.2	-14.0	59.5	74.5	-14.9
South Dakota	50.6	70.9	-20.3	61.8	66.9	-5.1
Tennessee	40.7	62.7	-22.0	40.3	64.3	-24.0
Texas	56.6	73.0	-16.4	62.3	70.7	-8.4
Utah	61.2	69.0	-7.8	61.9	72.5	-10.6
Vermont	73.7	74.9	-1.1	84.8	73.7	11.1
Virginia	55.9	71.3	-15.4	77.6	72.8	4.8
Washington	67.5	74.5	-6.9	78.5	72.7	5.8
West Virginia	86.6	72.5	14.1	86.3	72.9	13.5
Wisconsin	62.9	67.1	-4.2	74.0	72.3	1.7
Wyoming	76.7	70.8	5.9	80.4	73.3	7.1

NOTE: The difference in this table (the actual inclusion rate minus the nation-based benchmark inclusion rate) is also used in the report as the status measure.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Table C-5. Actual inclusion rate, jurisdiction-specific benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, mathematics grade 4: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	88.3	86.7	1.6	90.4	87.2	3.2
Alaska	91.3	91.2	0.1	93.3	94.0	-0.7
Arizona	83.4	82.0	1.5	89.8	79.2	10.6
Arkansas	79.8	86.8	-7.1	89.3	87.9	1.4
California	83.9	82.0	1.9	85.1	84.3	0.8
Colorado	88.2	85.8	2.4	87.1	84.7	2.4
Connecticut	89.7	87.9	1.7	87.3	85.2	2.1
Delaware	73.1	54.1	19.0	79.7	52.7	27.0
District of Columbia	66.3	71.2	-4.9	74.1	69.1	5.0
Florida	88.3	89.2	-0.9	90.1	88.9	1.2
Georgia	83.5	83.4	0.1	88.8	87.0	1.8
Hawaii	90.5	83.1	7.4	88.7	82.9	5.8
Idaho	86.3	93.1	-6.8	89.9	93.5	-3.7
Illinois	77.6	88.1	-10.6	89.0	88.4	0.6
Indiana	85.7	91.3	-5.6	85.5	92.5	-7.0
Iowa	90.0	85.8	4.2	87.9	88.1	-0.2
Kansas	78.9	86.2	-7.2	79.9	89.7	-9.8
Kentucky	84.2	85.0	-0.8	81.1	85.6	-4.5
Louisiana	87.8	83.0	4.8	91.1	87.6	3.5
Maine	83.7	85.1	-1.4	92.4	85.7	6.7
Maryland	72.7	77.2	-4.5	70.3	78.6	-8.3
Massachusetts	74.3	78.1	-3.7	77.1	78.1	-1.1
Michigan	76.1	78.3	-2.2	82.2	82.4	-0.2
Minnesota	85.9	85.8	0.2	88.8	87.4	1.4
Mississippi	92.3	79.9	12.4	92.1	78.1	14.1
Missouri	76.6	87.5	-10.9	82.6	88.0	-5.4
Montana	81.7	82.5	-0.8	86.5	84.7	1.8
Nebraska	85.7	90.9	-5.2	86.7	92.4	-5.6
Nevada	84.5	82.8	1.7	83.4	80.8	2.6
New Hampshire	88.7	89.5	-0.8	89.2	89.3	-0.1
New Jersey	88.0	87.3	0.7	87.0	89.2	-2.1
New Mexico	83.2	89.4	-6.3	83.1	92.6	-9.5
New York	91.2	84.9	6.2	94.3	85.1	9.3
North Carolina	89.7	92.6	-2.9	86.6	92.9	-6.3
North Dakota	76.3	82.5	-6.2	77.3	86.2	-8.9
Ohio	71.5	75.0	-3.5	81.3	79.3	2.0
Oklahoma	67.8	81.8	-14.0	74.7	85.2	-10.4
Oregon	85.8	78.0	7.9	85.3	77.6	7.7
Pennsylvania	86.1	87.9	-1.8	85.2	88.6	-3.4
Rhode Island	91.0	90.5	0.4	91.0	89.4	1.6
South Carolina	88.1	77.0	11.1	87.8	78.1	9.7
South Dakota	92.2	91.2	1.0	87.0	91.9	-4.9
Tennessee	59.4	79.8	-20.4	75.8	81.0	-5.2
Texas	62.8	65.9	-3.1	73.0	63.9	9.1
Utah	84.4	90.2	-5.8	83.5	91.5	-8.0
Vermont	86.4	82.0	4.3	89.2	82.0	7.2
Virginia	74.1	70.3	3.8	86.3	75.3	11.0
Washington	85.7	88.9	-3.1	87.3	87.8	-0.5
West Virginia	91.6	90.6	1.0	91.0	91.8	-0.7
Wisconsin	85.5	89.7	-4.2	87.8	88.8	-1.0
Wyoming	89.6	89.7	-0.1	93.4	91.9	1.5

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Table C-6. Actual inclusion rate, jurisdiction-specific benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, mathematics grade 8: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	76.8	90.9	-14.1	87.1	92.0	-4.9
Alaska	63.1	77.7	-14.6	74.4	85.9	-11.5
Arizona	75.3	74.6	0.7	85.4	76.2	9.1
Arkansas	81.7	83.4	-1.7	91.8	85.4	6.4
California	83.0	87.4	-4.4	85.0	83.7	1.3
Colorado	87.2	84.6	2.6	84.1	85.4	-1.3
Connecticut	90.7	82.3	8.4	86.5	85.7	0.8
Delaware	57.1	34.8	22.2	85.7	38.8	47.0
District of Columbia	45.7	71.6	-25.9	68.3	68.8	-0.5
Florida	83.5	85.8	-2.3	86.9	86.5	0.4
Georgia	50.2	79.5	-29.3	77.9	87.1	-9.2
Hawaii	90.8	88.3	2.6	89.5	87.8	1.7
Idaho	86.6	85.7	0.8	85.1	86.1	-1.0
Illinois	65.6	82.0	-16.4	81.1	84.8	-3.7
Indiana	63.8	78.5	-14.8	69.8	85.9	-16.1
Iowa	84.2	86.0	-1.7	83.9	85.8	-1.8
Kansas	69.5	72.8	-3.3	76.9	77.7	-0.8
Kentucky	51.5	65.6	-14.1	64.5	68.1	-3.6
Louisiana	74.1	68.4	5.7	88.9	70.8	18.1
Maine	71.9	78.0	-6.0	88.2	79.6	8.6
Maryland	38.3	60.1	-21.8	45.2	68.0	-22.8
Massachusetts	49.4	65.3	-15.8	72.7	72.1	0.6
Michigan	69.1	68.8	0.3	76.6	71.0	5.5
Minnesota	83.4	84.8	-1.3	83.3	86.8	-3.5
Mississippi	78.5	70.0	8.5	83.1	69.2	13.9
Missouri	65.4	73.7	-8.4	74.6	81.5	-6.9
Montana	77.3	85.0	-7.8	77.3	85.3	-8.0
Nebraska	83.0	92.1	-9.1	77.4	91.8	-14.4
Nevada	73.8	81.7	-7.9	78.3	80.4	-2.1
New Hampshire	83.3	88.7	-5.4	86.4	90.3	-3.9
New Jersey	82.7	86.6	-3.9	89.0	89.7	-0.7
New Mexico	83.5	82.9	0.6	78.0	81.2	-3.1
New York	79.3	84.0	-4.7	86.0	85.3	0.7
North Carolina	86.7	87.7	-1.0	88.6	89.6	-0.9
North Dakota	58.1	74.1	-16.0	67.9	78.5	-10.6
Ohio	53.6	61.4	-7.8	67.8	66.8	1.0
Oklahoma	44.9	77.0	-32.1	58.8	79.4	-20.6
Oregon	78.0	85.9	-7.8	80.8	84.9	-4.1
Pennsylvania	77.9	81.4	-3.6	82.5	85.4	-3.0
Rhode Island	88.0	88.2	-0.2	90.4	89.3	1.1
South Carolina	60.2	54.7	5.5	68.4	57.9	10.5
South Dakota	78.3	82.6	-4.3	83.5	86.5	-3.1
Tennessee	47.0	69.9	-22.9	66.8	73.2	-6.4
Texas	58.5	60.4	-1.9	61.9	59.6	2.3
Utah	77.1	82.5	-5.4	72.0	81.2	-9.2
Vermont	78.0	78.6	-0.6	88.8	82.7	6.1
Virginia	58.9	66.8	-7.9	76.0	70.3	5.7
Washington	73.1	84.4	-11.3	81.6	84.0	-2.4
West Virginia	88.9	84.4	4.5	89.7	85.0	4.7
Wisconsin	73.6	81.4	-7.7	85.2	85.3	-0.1
Wyoming	84.7	88.0	-3.3	87.1	86.8	0.2

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Mathematics Assessments.

Table C-7. Actual inclusion rate, jurisdiction-specific benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, reading grade 4: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	78.1	86.4	-8.3	85.4	86.4	-1.1
Alaska	80.9	88.5	-7.6	86.1	86.9	-0.8
Arizona	74.9	73.7	1.2	75.9	67.8	8.1
Arkansas	55.0	57.0	-2.0	90.7	58.6	32.1
California	77.3	78.7	-1.3	75.2	77.1	-1.8
Colorado	79.9	80.6	-0.7	76.3	79.5	-3.2
Connecticut	85.1	84.0	1.1	79.3	80.9	-1.6
Delaware	46.0	25.8	20.2	51.9	26.6	25.2
District of Columbia	28.6	60.3	-31.7	32.2	64.0	-31.9
Florida	77.3	77.7	-0.3	84.2	78.6	5.6
Georgia	43.4	59.5	-16.2	66.0	68.1	-2.1
Hawaii	77.1	82.0	-4.8	86.9	83.9	3.0
Idaho	77.2	75.8	1.3	74.2	71.7	2.5
Illinois	67.5	71.8	-4.2	83.1	76.3	6.8
Indiana	77.6	79.5	-1.9	74.3	80.0	-5.7
Iowa	71.2	74.4	-3.2	73.0	79.4	-6.3
Kansas	62.4	81.2	-18.8	68.9	83.6	-14.6
Kentucky	53.1	55.8	-2.6	53.5	55.7	-2.3
Louisiana	79.3	51.0	28.3	90.8	52.4	38.4
Maine	69.5	65.7	3.8	76.8	64.5	12.3
Maryland	51.4	63.7	-12.2	40.2	57.4	-17.2
Massachusetts	72.1	68.5	3.6	77.4	72.3	5.2
Michigan	68.2	53.9	14.3	73.1	58.4	14.7
Minnesota	77.1	88.9	-11.8	85.7	89.5	-3.8
Mississippi	77.6	64.4	13.3	86.2	63.4	22.8
Missouri	78.9	69.1	9.8	78.2	64.7	13.5
Montana	64.8	65.6	-0.8	70.9	68.9	2.1
Nebraska	72.1	74.5	-2.3	79.5	78.4	1.0
Nevada	70.1	69.1	1.1	73.9	68.8	5.1
New Hampshire	79.8	85.1	-5.3	83.6	84.4	-0.8
New Jersey	61.7	77.1	-15.4	55.6	79.1	-23.4
New Mexico	54.2	70.3	-16.0	68.2	69.2	-1.0
New York	72.5	76.8	-4.3	78.7	76.8	1.9
North Carolina	87.6	87.4	0.3	87.0	85.7	1.3
North Dakota	46.2	66.7	-20.5	57.5	80.0	-22.5
Ohio	50.6	51.1	-0.5	58.9	55.4	3.6
Oklahoma	58.8	75.8	-17.1	57.6	76.0	-18.4
Oregon	74.3	69.0	5.2	81.6	73.0	8.6
Pennsylvania	72.0	75.2	-3.1	82.6	78.2	4.4
Rhode Island	82.9	91.6	-8.8	83.4	92.5	-9.1
South Carolina	73.7	66.0	7.7	69.6	68.5	1.1
South Dakota	66.2	77.1	-10.9	60.5	73.4	-12.9
Tennessee	37.0	43.1	-6.1	38.2	47.5	-9.4
Texas	51.7	58.8	-7.1	56.7	60.5	-3.9
Utah	62.8	74.8	-11.9	62.3	76.7	-14.3
Vermont	67.0	70.4	-3.4	83.1	75.3	7.8
Virginia	55.5	50.4	5.1	73.4	55.5	18.0
Washington	72.5	79.1	-6.6	78.1	78.7	-0.6
West Virginia	91.0	73.6	17.5	87.6	75.7	12.0
Wisconsin	72.4	78.1	-5.7	77.6	77.8	-0.2
Wyoming	78.6	88.7	-10.1	89.7	91.0	-1.2

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Table C-8. Actual inclusion rate, jurisdiction-specific benchmark inclusion rate, and difference for students with disabilities who are not English language learners by state, reading grade 8: 2007 and 2009

State	2007			2009		
	Actual	Benchmark	Difference	Actual	Benchmark	Difference
Alabama	74.2	88.0	-13.8	86.7	88.6	-2.0
Alaska	84.1	86.6	-2.5	89.8	90.4	-0.6
Arizona	67.3	71.8	-4.5	79.2	70.9	8.3
Arkansas	62.1	71.7	-9.7	88.0	70.8	17.2
California	80.3	84.1	-3.7	83.1	83.1	0.1
Colorado	78.1	83.1	-5.0	77.1	80.9	-3.8
Connecticut	87.0	84.2	2.8	86.1	85.5	0.6
Delaware	62.6	37.0	25.6	74.3	37.8	36.5
District of Columbia	33.6	59.8	-26.3	33.4	61.0	-27.6
Florida	83.5	81.5	1.9	83.9	81.1	2.7
Georgia	45.0	59.9	-14.9	70.0	69.2	0.7
Hawaii	87.6	84.8	2.9	88.6	83.3	5.3
Idaho	74.9	82.1	-7.2	80.2	79.4	0.8
Illinois	72.4	76.8	-4.4	78.9	82.7	-3.8
Indiana	70.9	75.9	-4.9	65.2	78.3	-13.2
Iowa	71.7	79.9	-8.2	72.3	80.6	-8.3
Kansas	65.9	72.6	-6.7	66.1	73.1	-7.0
Kentucky	42.4	45.9	-3.5	46.2	49.1	-2.9
Louisiana	80.1	63.4	16.6	88.5	61.1	27.5
Maine	67.9	69.1	-1.2	80.7	70.9	9.8
Maryland	47.8	69.3	-21.5	44.5	72.0	-27.5
Massachusetts	68.7	73.9	-5.2	78.9	76.7	2.3
Michigan	63.4	65.3	-1.9	70.6	68.0	2.6
Minnesota	73.2	84.4	-11.2	78.9	85.0	-6.1
Mississippi	63.2	63.3	-0.1	84.1	64.0	20.1
Missouri	76.1	63.1	13.0	76.5	65.0	11.6
Montana	69.2	74.3	-5.1	70.5	75.5	-5.0
Nebraska	73.8	81.1	-7.3	63.6	77.2	-13.6
Nevada	69.5	73.2	-3.7	83.5	79.6	3.9
New Hampshire	80.7	89.9	-9.1	83.7	89.9	-6.2
New Jersey	64.7	79.5	-14.8	68.0	78.4	-10.4
New Mexico	60.5	72.0	-11.5	65.7	71.3	-5.5
New York	66.8	70.1	-3.3	66.5	73.0	-6.5
North Carolina	83.2	83.9	-0.7	86.4	83.9	2.5
North Dakota	38.7	58.7	-20.0	46.3	64.9	-18.6
Ohio	50.9	52.8	-1.9	57.1	61.5	-4.4
Oklahoma	59.3	79.8	-20.4	71.3	84.8	-13.5
Oregon	81.5	76.2	5.3	81.8	78.8	3.0
Pennsylvania	73.8	83.0	-9.2	84.1	85.9	-1.8
Rhode Island	85.3	89.6	-4.3	89.5	90.7	-1.2
South Carolina	57.2	54.2	3.0	59.5	56.6	2.9
South Dakota	50.6	77.0	-26.3	61.8	74.3	-12.5
Tennessee	40.7	46.8	-6.1	40.3	50.3	-10.0
Texas	56.6	60.8	-4.2	62.3	60.9	1.4
Utah	61.2	68.1	-6.9	61.9	72.6	-10.7
Vermont	73.7	80.6	-6.9	84.8	79.3	5.4
Virginia	55.9	63.1	-7.2	77.6	66.3	11.4
Washington	67.5	76.2	-8.7	78.5	76.8	1.7
West Virginia	86.6	72.4	14.2	86.3	70.0	16.3
Wisconsin	62.9	67.6	-4.7	74.0	74.7	-0.7
Wyoming	76.7	83.4	-6.7	80.4	84.6	-4.2

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005, 2007, and 2009 Reading Assessments.

Appendix D. Caveats

Subjectivity and Measurement Error

Some degree of subjectivity may exist in the variables providing information on a student's disability characteristics. For example, the various respondents who classify the students for the SD Background Questionnaire 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.

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.

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 from systematic subjectivity is not a concern in the jurisdiction-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.

A full discussion is provided in the 2009 report, Kitmitto and Bandeira de Mello (2009).

Reschly, D. J. (1996, Spring). Identification and Assessment of Students With Disabilities. *The Future of Children*, 6: pp. 40-53.



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