

# Evaluating the Impact of Charter Schools on Student Achievement: A Longitudinal Look at the Great Lakes States

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## ***Executive Summary***

The aim of this study is to examine the impact of charter schools on student achievement in the Great Lakes states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. This evaluation addresses two specific questions:

- How does student achievement in charter schools compare with student achievement in demographically similar, traditional public schools?
- Do charter schools show promise of being an effective strategy for improving student achievement over time, even if they are not yet outperforming traditional public schools?

### **Current Performance of Charter Schools on State Assessments**

We conclude that charter schools in the Great Lakes region are currently performing at lower levels than predicted on state assessments—that is, student achievement in them is lower than it is in demographically similar public schools. Lowest performance appears in the states with the newest charter school initiatives, Indiana and Ohio. Illinois has the highest relative results, perhaps because some 15 percent of its charter schools have closed since 2000; when poorly performing schools close, aggregate results for remaining schools rise.

Despite the performance of charter schools in the region overall, at the school level a number of successful charter schools are consistently performing better than expected. Still, for some 60 percent of the school level comparisons drawn, charter schools were performing at levels lower than predicted.

### **Are Charter Schools Improving Over Time?**

Despite lower achievement results than expected, there is evidence that charter schools are gaining ground and that results are improving over time. Trends in the older reform states—including Minnesota, Wisconsin, and Michigan—show a

relatively slow rate of improvement. Relatively newer reform states—Ohio and Indiana—have the lowest current results, but over time their charter schools are making relatively large improvements.

The findings from this study represent an important contribution to the growing body of knowledge about the performance of charter schools as measured by student achievement. Similar to the conclusions that can be drawn from that broader body of research, we have found that charter schools are not performing at levels that exceed traditional public schools. While Illinois has taken measures to close some of its poorly performing schools, the weaker charter schools in the other states continue to overshadow the successful charter schools.

### **Summary of Findings**

- Charter schools in the Great Lakes states are not currently outperforming demographically similar, traditional public schools.
- Trends indicate that generally, charter schools are making notable gains in achievement over time, with newest initiatives showing some of the greatest rates of improvement.
- All states in the region do have some successful charter schools.

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## ***Introduction***

The aim of this study is to examine the impact of charter schools on student achievement in the Great Lakes states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. The Great Lakes region has been a leader in developing charter schools, with Minnesota passing the first law and Ohio, Michigan, and Wisconsin among the top seven states in terms of the number of charter schools in operation. The Great Lakes states account for one-quarter of the nation's charter schools. Although extensive research has been conducted on the charter school reforms in the region, few studies have examined the relative performance of charter schools in terms of student achievement (Michigan being the exception). Instead, existing literature on charter schools in the region largely focuses on start-up and implementation. The few studies or reports that address student achievement typically examine single schools or are comprised of annual reports with descriptive data listed for schools, but no aggregation and no evaluative judgments regarding whether charter schools are performing better or worse than expected, either in terms of their individual performance or in terms of their relative performance when compared to similar non-charter schools.<sup>1</sup>

Some argue that each charter school is unique, and therefore aggregate data on charter schools is an inappropriate indicator of their reform potential. Only aggregate data and cross-school analyses, however, can help answer key policy questions such as, "Will providing greater autonomy to schools actually result in improved student achievement, as charter school advocates contend?"

Two specific evaluation questions are addressed in this study:

- How does student achievement in charter schools compare with student achievement in demographically similar, traditional public schools?
- Do charter schools show promise of being an effective strategy for improving student achievement over time, even if they are not yet outperforming traditional public schools?

The next section summarizes the design and methodology of the study.

## *Methodology*

This evaluation focuses exclusively on student achievement. An analysis of differences among schools or states or the extent to which charter schools benefit from their increased autonomy is beyond the scope of this work. Table 1 presents decision criteria and the rationale followed regarding the study's scope and focus. Although data collection and analytical challenges varied considerably by state, the intent of the criteria was to ensure that the study was as structured and systematic as possible.

**Table 1. Decision Criteria and Descriptions**

| <i>Topic</i>    | <i>Decision Criteria, Description, Rationale</i>   |
|-----------------|--|
| States Included | This evaluation was sponsored by the Great Lakes Center, so the decision to focus on these states is based on its location in the Great Lakes region.  |
| Tests           | Only the results of state achievement tests were used since all public schools, including charter schools, must participate in these assessments and they are familiar to a broad range of stakeholders. While some states administer other standardized tests, <sup>2</sup> these typically include only a sample of schools or students. |
| Outcome Measure | Preference was given to the most sensitive test measure available in the following order: normal curve equivalent, percentile rank, scaled score (mean achievement test score for a school), and cut score (mean percentage of students meeting or exceeding state standards).   |
| Test Content    | Math and reading test results were used because they had the best longitudinal data and typically comprise the high stakes component of state assessment programs.   |
| Grade Levels    | One grade at each school level (elementary, middle, high) was included. Preference was given to the highest grade with longitudinal data at each level. <sup>3</sup>   |
| Years           | Trends were analyzed over a five-year period, with preference given to the five most recent years for which data were available.   |

### **Design and Overview**

This evaluation compared student math and reading achievement in charter and public schools in the six Great Lakes states over a five-year period. The National Center for Education Statistics' Common Core of Data<sup>4</sup> was the source of data on several factors, including school enrollment, ethnicity, free and reduced-price lunch, locale, and a charter school identifier. State Department of Education web sites were the sources for data on special education enrollment, limited English proficiency enrollment, number of students tested, and achievement test scores. Independent variables included minority, free/reduced-price lunch, special education, limited English proficiency, and locale for each school. The dependent variable was achievement test results for each school. See Table 2 for study variables and definitions.

**Table 2. Independent and Dependent Study Variables**

| <i>Variable</i>             | <i>Definition</i>   |
|-----------------------------|---|
| Minority                    | Percentage of students in each school who are American Indian/Alaska Native, Hispanic, and Black (White and Asian/Pacific Islander students were intentionally excluded)  |
| Free/Reduced-price Lunch    | Percentage of students in each school eligible to receive free or reduced-price lunch. This variable identified a school's "low income" status  |
| Special Education           | Percentage of students in each school identified as "special education" students (have disabilities, receive special education services, have individualized education plans/programs, or IEPs)   |
| Limited English Proficiency | Percentage of students in each school with limited English proficiency  |
| Locale                      | 8-category urbanicity rating for each school based on its community's population density (see Appendix A for categories and definitions)  |
| Test Results                | Order of preference in selecting test score data was based on the sensitivity of the measure: scaled scores (mean achievement test score for a school) were preferred and used over cut scores (mean percentage of students meeting or exceeding standards) when possible |

### **Residual Gains Analysis**

Linear regression models were used to estimate student achievement growth/decline patterns, producing three estimates: (1) actual scores, based on observed student achievement data provided by each school; (2) predicted scores, based on the performance of demographically similar public schools across the state; and (3) residual scores, based on the difference between predicted and actual charter school student achievement. These residuals, or differences, indicate whether the charter school (or group of schools) is performing at, above, or below predicted levels, with predicted levels equating performance levels of demographically similar traditional public schools. A zero residual score indicates predicted performance; a negative residual score indicates lower performance than predicted; a positive residual indicates higher performance than predicted.

### **Limitations**

While the longitudinal design, broad scope, and overall quality of this study makes it one of the most rigorous and comprehensive evaluations of charter school student achievement, several limitations should be considered when interpreting results:

1. This study is based on school-level rather than student-level analyses; thus, fully controlling for student mobility or identifying differences within schools was not possible.
2. Analyses were conducted on consecutive cohorts of students in identical grades (4<sup>th</sup> graders in 2003, 4<sup>th</sup> graders in 2004, 4<sup>th</sup> graders in 2005); therefore, each cohort group had different students. Data were not available to track the same cohorts of students as they progressed through grades (for example, from grade 4 in 2003 to grade 5 in 2004).
3. The quality (sensitivity) of student achievement scores varied by state, with all states reporting cut scores but only a few reporting mean scaled scores.
4. Charter schools with missing or incomplete data were dropped from analyses. The most common explanation for missing data was that specific charter schools had too few test takers. (One of the most common measures to ensure the confidentiality of findings is to report performance results only when there are 10 or more test takers; in some states this threshold was as low as 5). The results from Ohio were particularly affected by incomplete data. Although Ohio has the most charter schools in the region, this state had the highest proportion of schools dropped from the analysis due to incomplete data (see Appendix F for more details).
5. Data on special education and limited English proficiency were not available in some states at the school level. Even when we can control for the percentage of special education students, we cannot control for differences in the nature and degree of severity of disabilities. Our state evaluations revealed that charter schools have, on average, a substantially lower proportion of students with disabilities, and the students with disabilities who enroll in charter schools tend to have disabilities that are less severe and less costly to remediate.<sup>5</sup>

In the following section, we summarize the findings from each of the six states.

### ***Findings: Actual Scores, Predicted Scores, and Residuals***

In this section, tables and line graphs are used to illustrate the findings, which are ordered alphabetically by state. As noted in the methods section, we compared each charter school's actual test results with its predicted results, which are based on a statistical analysis of results for all demographically similar public schools statewide. Thus, the difference between prediction and performance, or the residual score, indicates the charter school performance in relation to similar public schools: a positive residual score indicates better than predicted performance, and a negative one indicates lower than predicted performance.

Table 3 summarizes all positive and negative residual scores, with results broken out by subject- and grade-level tests. The total number of comparisons made for each state is considerably higher than the total number of charter schools, since each charter school typically participates in a number of different



grade- and subject-level tests. Figure 2 illustrates positive score percentages for each state. Illinois has the best record, with 57 percent of its school-level residual scores being positive. Indiana and Ohio have less impressive results, with only 27 and 33 percent positive residual scores, respectively. These rates indicate that while some schools are doing better than predicted, nearly two-thirds of the schools have test results lower than predicted.

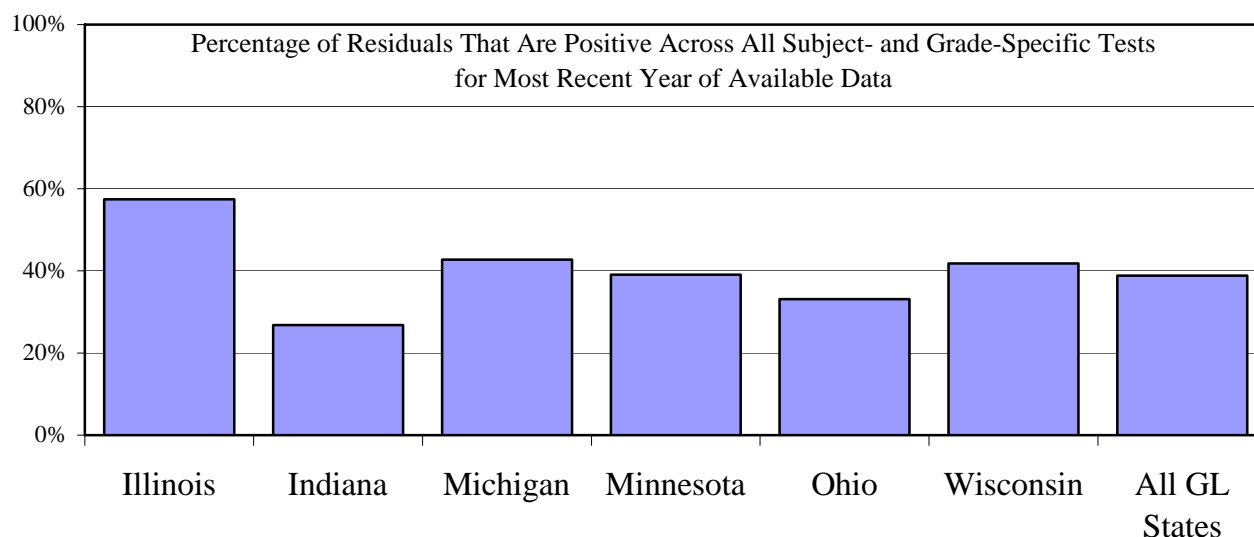
**Table 3. Cross-Sectional Comparison of Schools with Positive or Negative Residual Scores Using Most Recent Year of Available Data**

|                         |                     |                        |                                   |                                   |                      |                         |               |
|-------------------------|---------------------|------------------------|-----------------------------------|-----------------------------------|----------------------|-------------------------|---------------|
| <b><i>Illinois</i></b>  | <i>Grade 5 Math</i> | <i>Grade 5 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 8 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 11 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 5                   | 3                      | 7                                 | 8                                 | 4                    | 4                       | 31            |
| Negative Residuals      | 4                   | 6                      | 4                                 | 3                                 | 3                    | 3                       | 23            |
| Percent Positive        | 55.5%               | 50%                    | 63.6                              | 72.7%                             | 57.1%                | 57.1%                   | 57.4%         |
| <b><i>Indiana</i></b>   | <i>Grade 3 Math</i> | <i>Grade 3 Reading</i> | <i>Grade 6 Math &amp; Reading</i> | <i>Grade 8 Math &amp; Reading</i> | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 4                   | 4                      | 10                                | 7                                 | 4                    | 4                       | 33            |
| Negative Residuals      | 17                  | 17                     | 24                                | 19                                | 6                    | 7                       | 90            |
| Percent Positive        | 19.0%               | 19.0%                  | 29.4%                             | 26.9%                             | 40.0%                | 36.4%                   | 26.8%         |
| <b><i>Michigan</i></b>  | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 7 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 11 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 66                  | 66                     | 57                                | 67                                | 19                   | 23                      | 298           |
| Negative Residuals      | 98                  | 96                     | 72                                | 72                                | 32                   | 30                      | 400           |
| Percent Positive        | 40.2%               | 40.7%                  | 44.2%                             | 48.2%                             | 37.3%                | 43.4%                   | 42.7%         |
| <b><i>Minnesota</i></b> | <i>Grade 5 Math</i> | <i>Grade 5 Reading</i> | <i>Grade 7 Math</i>               | <i>Grade 7 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 13                  | 15                     | 13                                | 13                                | 19                   | 20                      | 93            |
| Negative Residuals      | 30                  | 23                     | 19                                | 19                                | 29                   | 25                      | 145           |
| Percent Positive        | 30.2%               | 39.5%                  | 40.6%                             | 40.6%                             | 39.6%                | 44.4%                   | 39.1%         |
| <b><i>Ohio</i></b>      | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 6 Math</i>               | <i>Grade 6 Reading</i>            | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 36                  | 39                     | 34                                | 51                                | 4                    | 7                       | 171           |
| Negative Residuals      | 82                  | 78                     | 81                                | 65                                | 25                   | 15                      | 346           |
| Percent Positive        | 30.5%               | 33.3%                  | 29.6%                             | 44.0%                             | 13.8%                | 31.8%                   | 33.1%         |
| <b><i>Wisconsin</i></b> | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 8 Reading</i>            | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Positive Residuals      | 16                  | 14                     | 18                                | 20                                | 4                    | 5                       | 77            |
| Negative Residuals      | 20                  | 22                     | 19                                | 17                                | 15                   | 14                      | 107           |
| Percent Positive        | 44.4%               | 38.9%                  | 48.6%                             | 54.1%                             | 21.1%                | 26.3%                   | 41.8%         |

| <i><b>TOTALS ACROSS ALL GL STATES</b></i> | <i>Grade 4/5 Math</i> | <i>Grade 4/5 Reading</i> | <i>Grade 6/7/8 Math</i> | <i>Grade 6/7/8 Reading</i> | <i>Grade 10/11 Math</i> | <i>Grade 10/11 Reading</i> | <i>TOTALS</i> |
|---|-----------------------|--------------------------|-------------------------|----------------------------|-------------------------|----------------------------|---------------|
| Positive Residuals                        | 140                   | 141                      | 139                     | 166                        | 54                      | 63                         | 703           |
| Negative Residuals                        | 251                   | 242                      | 219                     | 195                        | 110                     | 94                         | 1,111         |
| Percent Positive                          | 35.8%                 | 36.8%                    | 38.8%                   | 46.0%                      | 32.9%                   | 40.1%                      | 38.8%         |

The results in Table 3 provide a cross-sectional picture of charter school performance for the most recent year that test data were available. For Indiana and Michigan, the most recent year for which test data could be obtained was 2006-2007, which is very recent. For the other states, the most recent year of data was 2005-2006, or 2004-2005 for some specific tests. Further details about each state's data and results are included in appendices B-G.

The bottom three rows in Table 3 include total figures across all six Great Lakes states. As one can see, in 703 of the school-level comparisons the charter schools had scores that were higher than predicted. Unfortunately, a total of 1,111 of the comparisons reveals that charter schools had a negative residual, indicating they were performing at levels lower than predicted (i.e., lower than demographically similar public schools upon which the predicted values are based).



**Figure 2. Percentage of Positive Residual Scores by State**

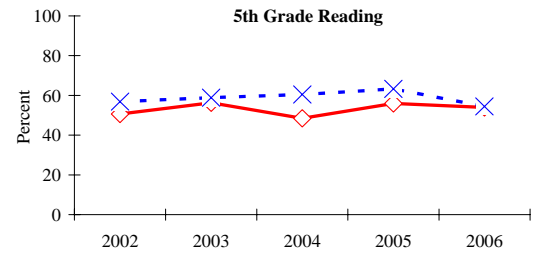
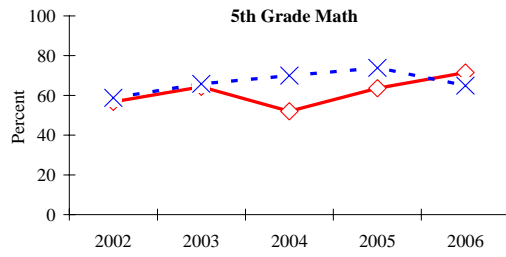
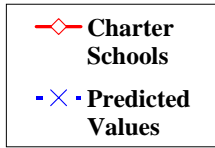
The following pages contain graphs that illustrate the findings for each of the six states. A dedicated page for each state illustrates its charter schools' performance results on state assessment tests. The upper half of the page presents graphs that illustrate the actual results achieved as well as the results predicted. Trends over time are clearly illustrated, and it is evident that most charter school achievement trends are improving. The lower half of the page summarizes residual scores.

It is important to remember that the data in these particular graphs represent a subset of charter schools, those which had complete and valid test data and demographic data available for the years tracked. Generally, the sample represents approximately half of the charter schools in a given state. If all schools had been included, there would have been considerable “noise” in the data: some schools may have opened only recently; others might have appeared in aggregate findings for a few years but then dropped out of them when they closed or failed to report valid test data. The decision to limit the sample to the same schools over the years studied was made in the interest of better estimating charter schools’ impact over time.

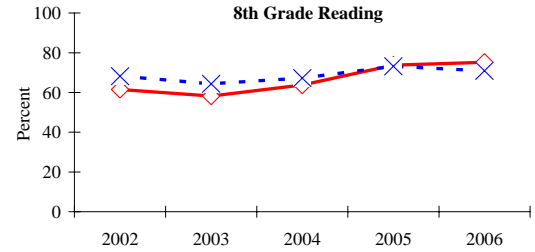
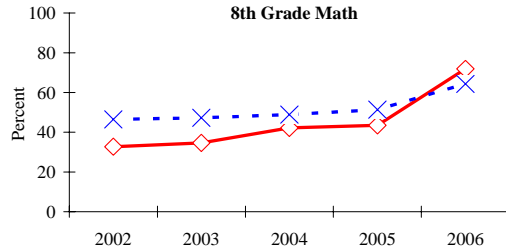
Another note to keep in mind is that when results are combined across schools, the results are weighted by the number of test takers in each school; therefore, large schools influence the combined results more than small schools. For example, if a large school has extremely positive results, its results will outweigh those of a small school with less positive results.

# Illinois Charter School Results and Their Predicted Scores

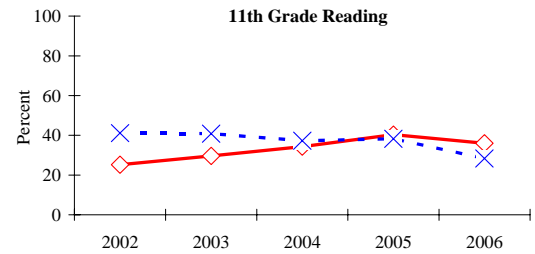
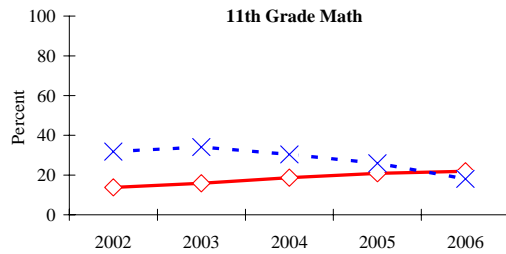
Grade 5



Grade 8

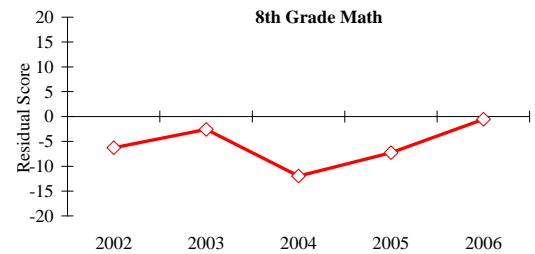
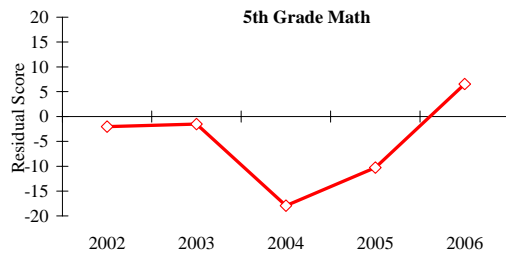


Grade 11

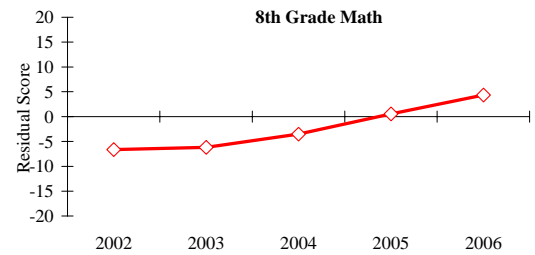
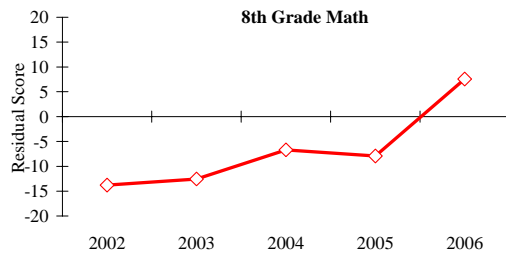


## Residuals for Illinois Charter Schools

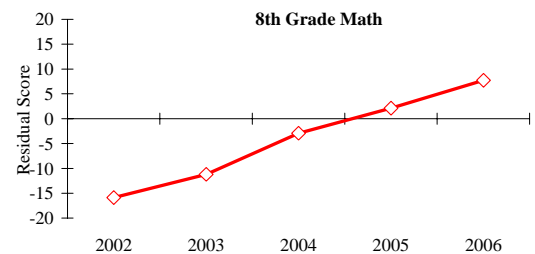
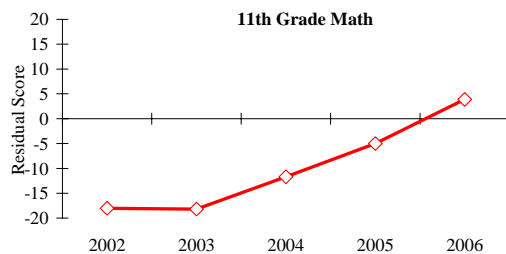
Grade 5



Grade 8

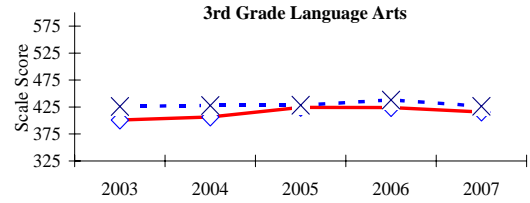
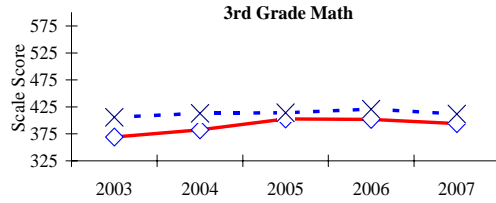


Grade 11

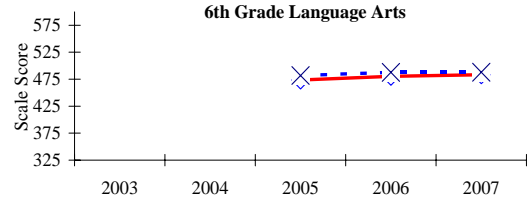
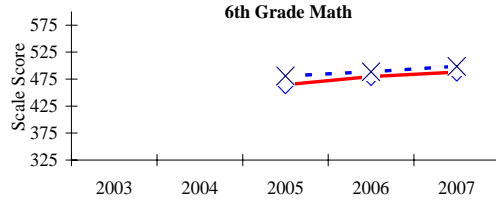


# Indiana Charter School Results and Their Predicted Scores

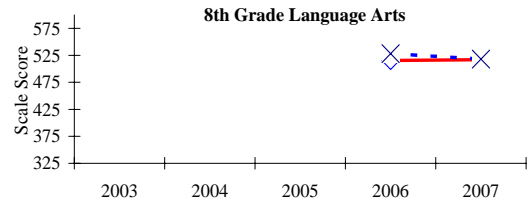
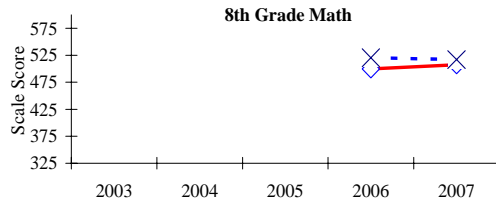
Grade 3



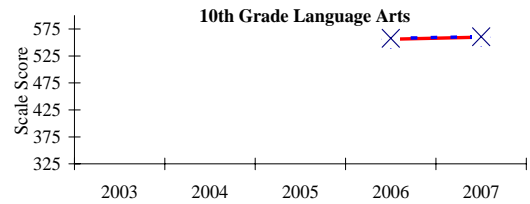
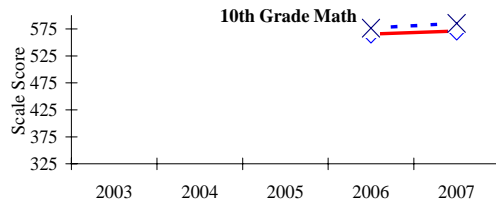
Grade 6



Grade 8

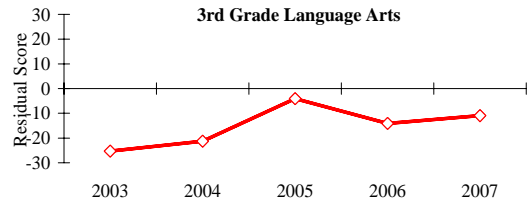
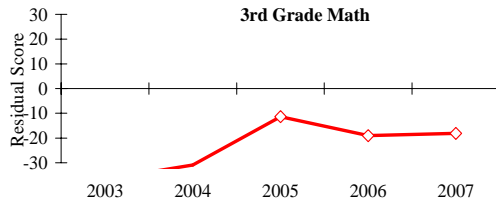


Grade 10

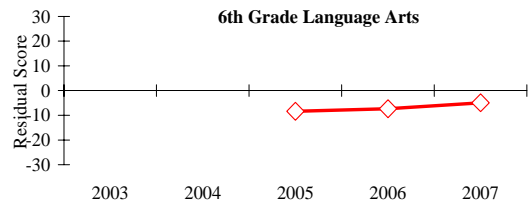
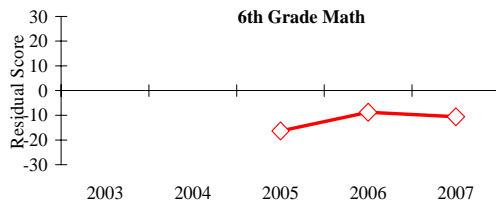


## Residuals for Indiana Charter Schools

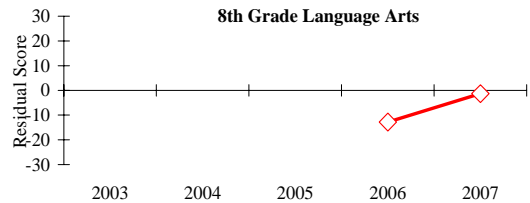
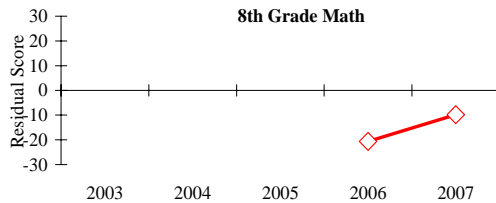
Grade 3



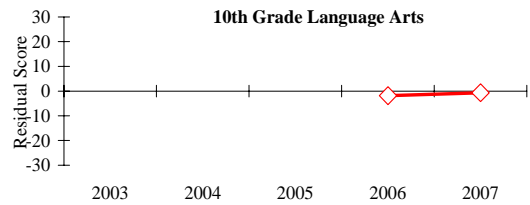
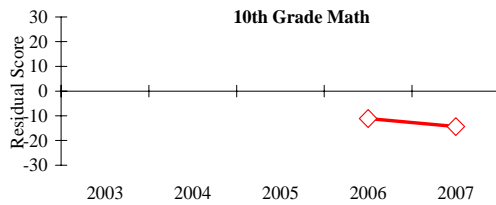
Grade 6



Grade 8

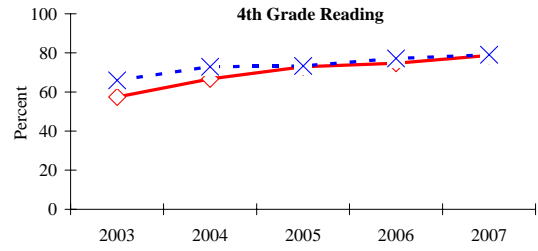
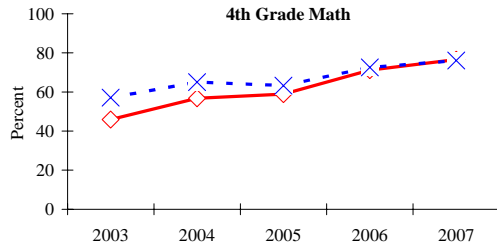
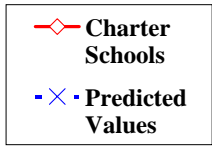


Grade 10

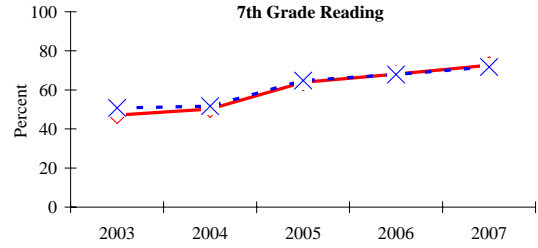
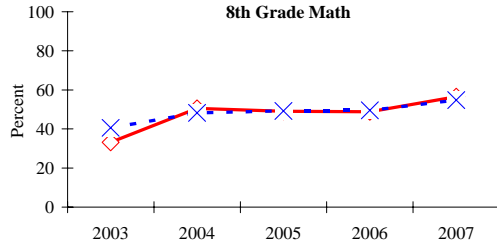


# Michigan Charter School Results and Their Predicted Scores

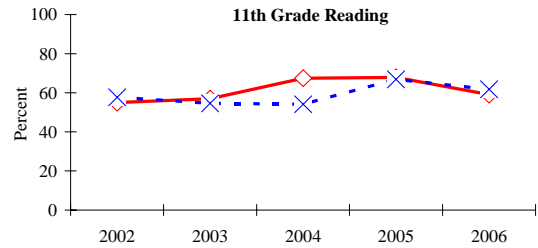
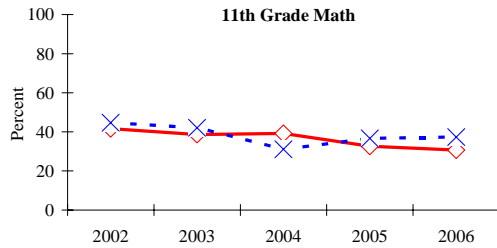
Grade 4



Grade 7 Reading  
Grade 8 Math

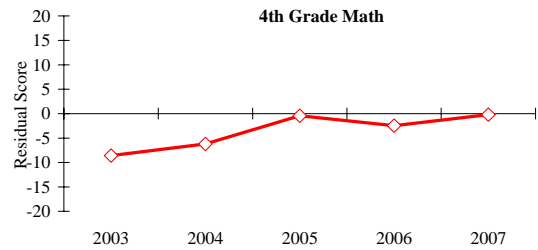
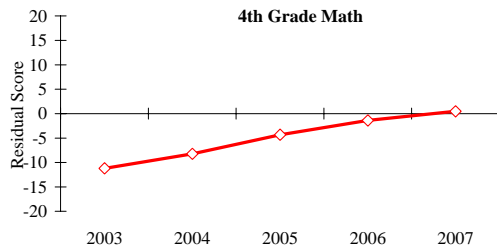


Grade 11

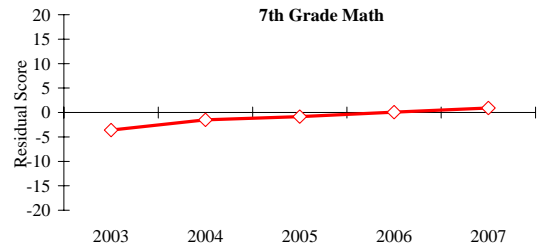
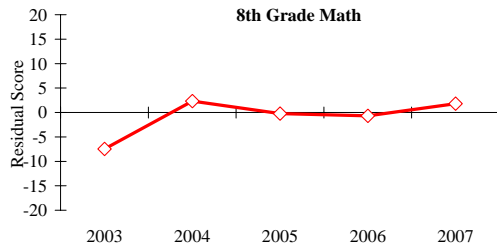


## Residuals for Michigan Charter Schools

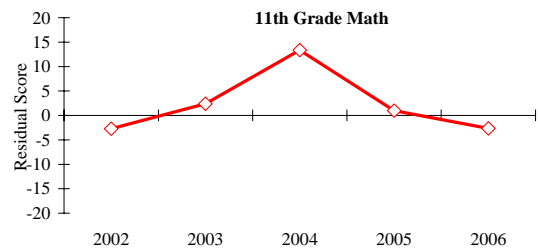
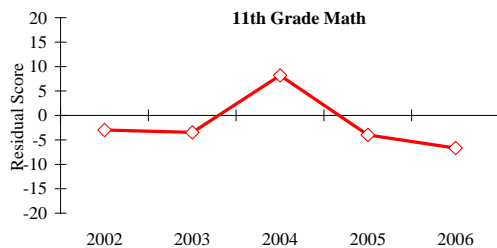
Grade 4



Grade 7 Reading  
Grade 8 Math

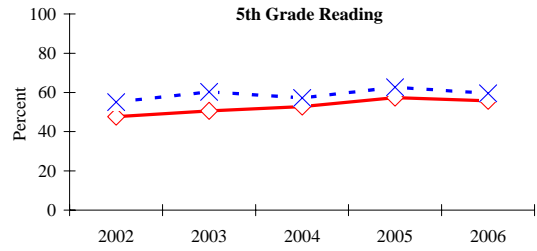
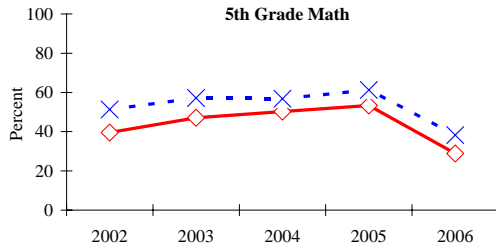
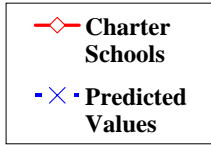


Grade 11

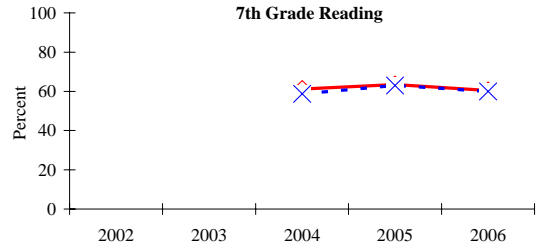
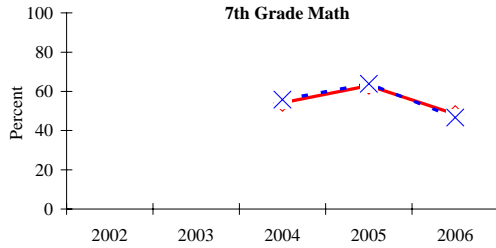


# Minnesota Charter School Results and Their Predicted Scores

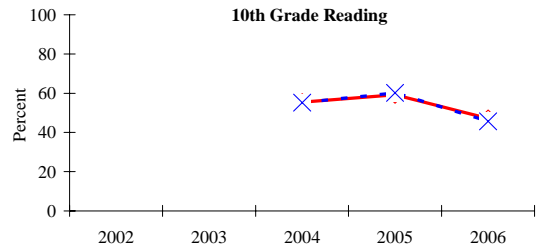
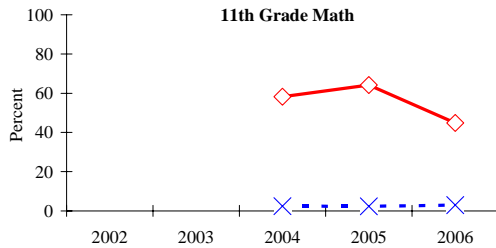
Grade 5



Grade 7

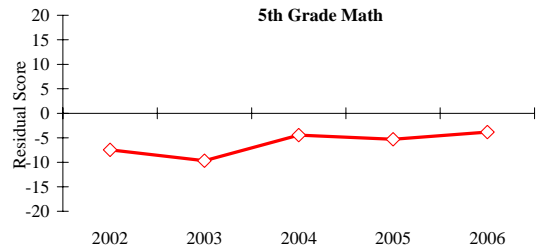
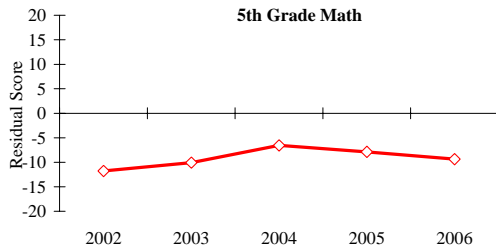


Grade 10 Reading  
Grade 11 Math

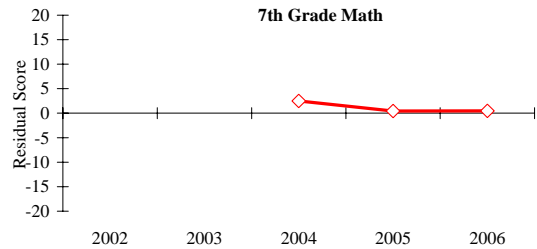
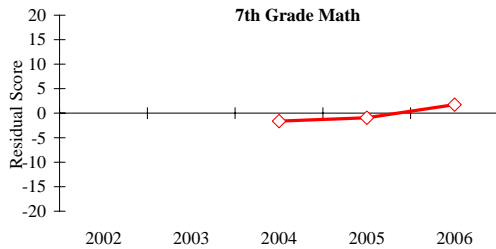


## Residuals for Minnesota Charter Schools

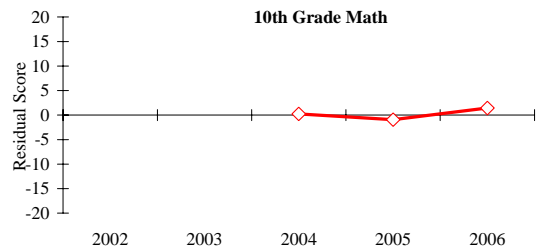
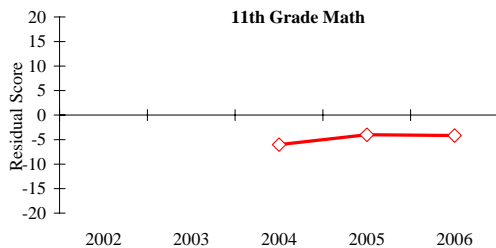
Grade 5



Grade 7

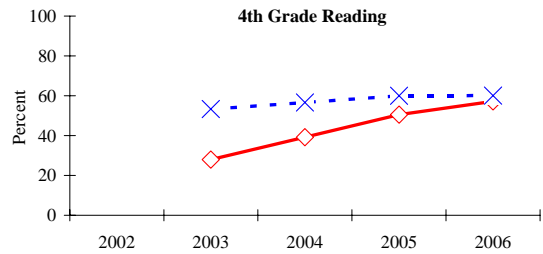
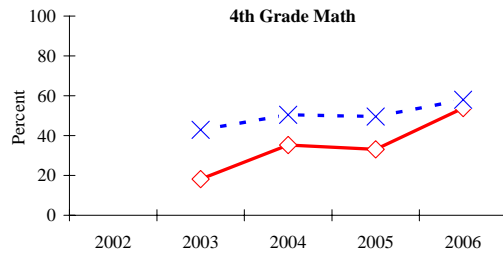
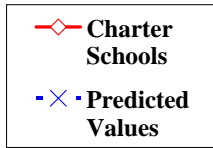


Grade 10 Reading  
Grade 11 Math

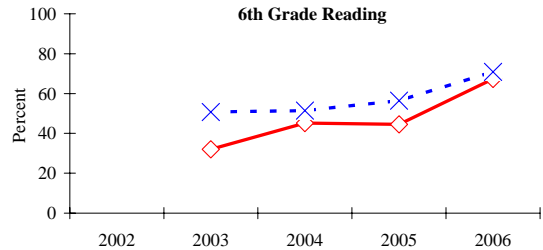
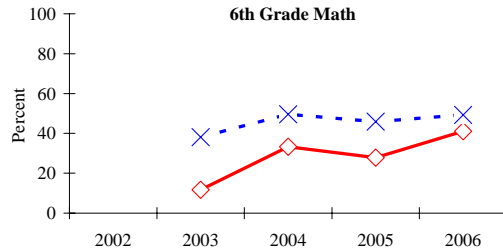


# Ohio Charter School Results and Their Predicted Scores

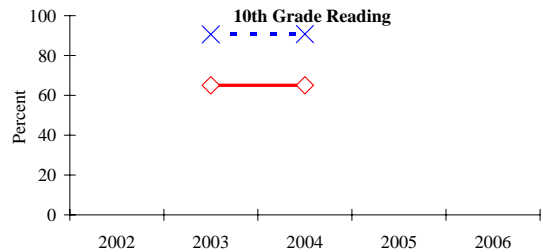
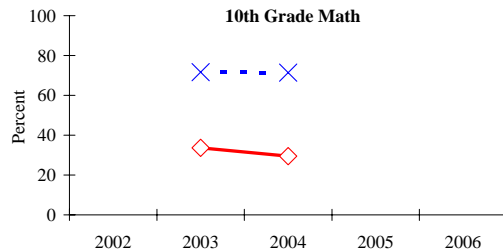
Grade 4



Grade 6

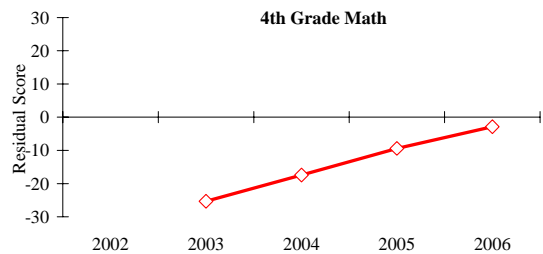
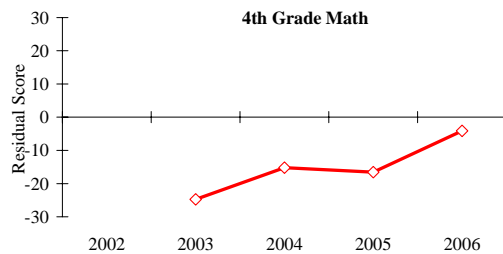


Grades 10

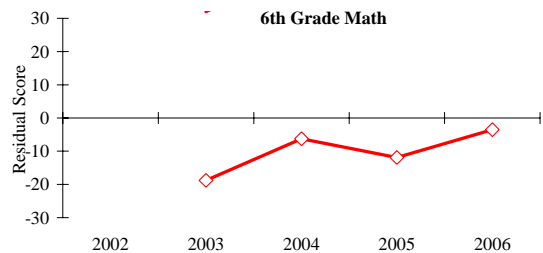
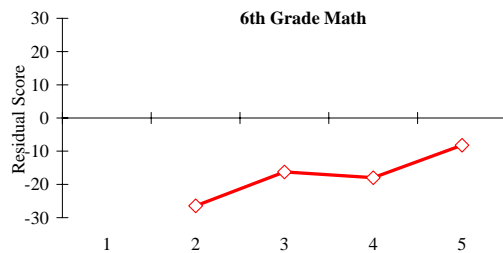


## Residuals for Ohio Charter Schools

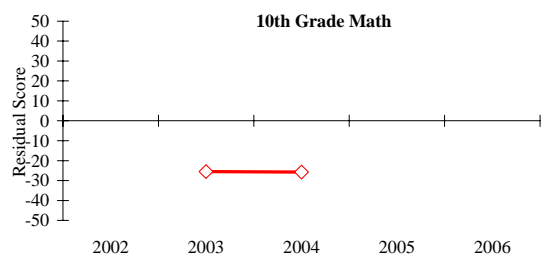
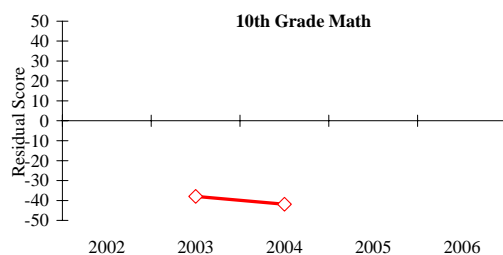
Grade 4



Grade 6



Grades 10

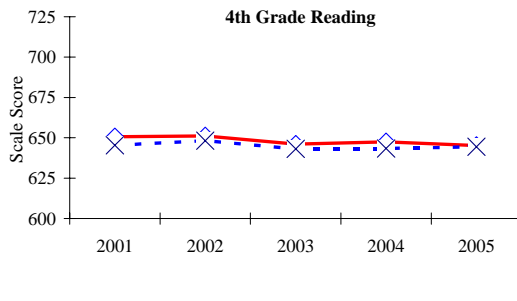
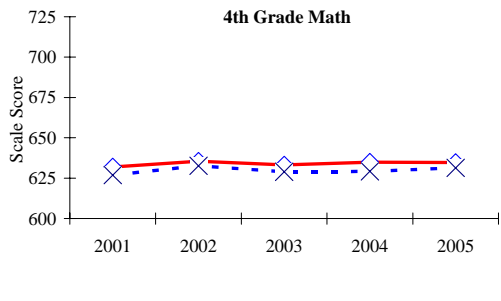


Note: The findings from Ohio should be interpreted with care given that only a small portion of the schools had valid data (see Appendix F for more details)

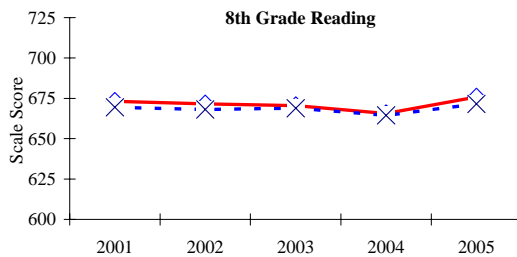
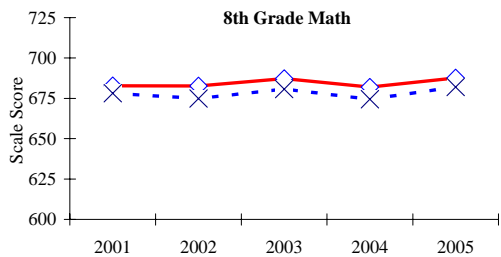


# Wisconsin Charter School Results and Their Predicted Scores

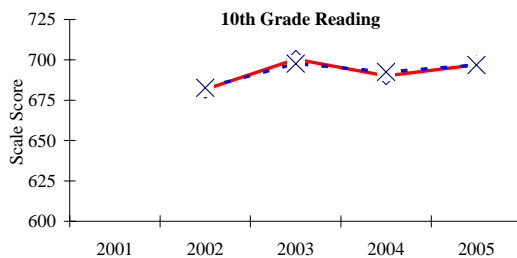
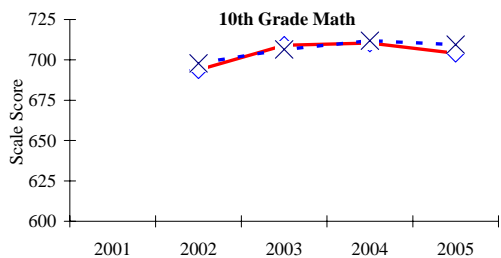
Grade 4



Grade 8

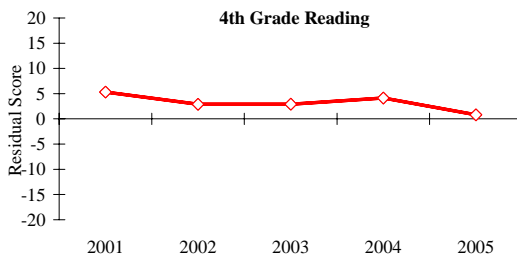
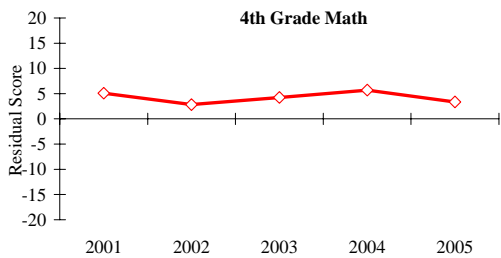


Grade 10

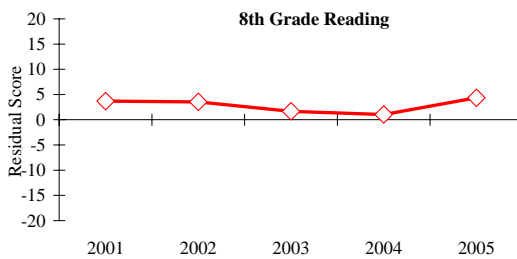
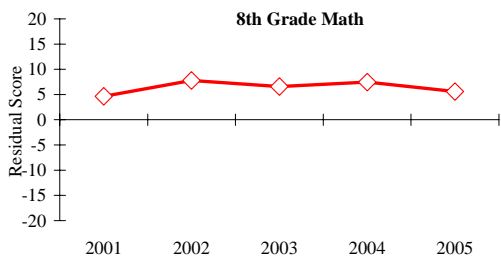


## Residuals for Wisconsin Charter Schools

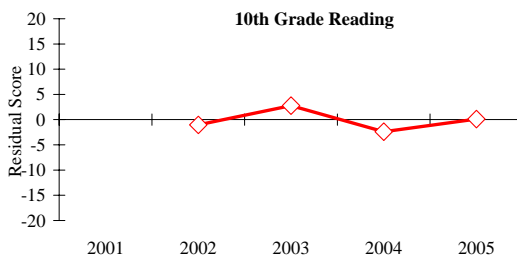
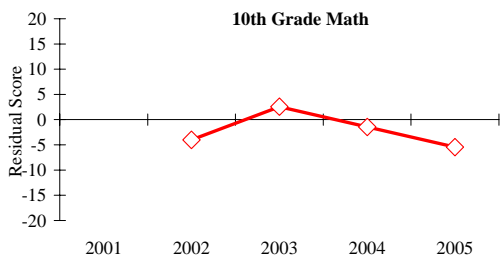
Grade 4



Grade 8



Grade 10



The grade 10 cohort starts in 2002, since half as many schools would have been included in a cohort starting in 2001.

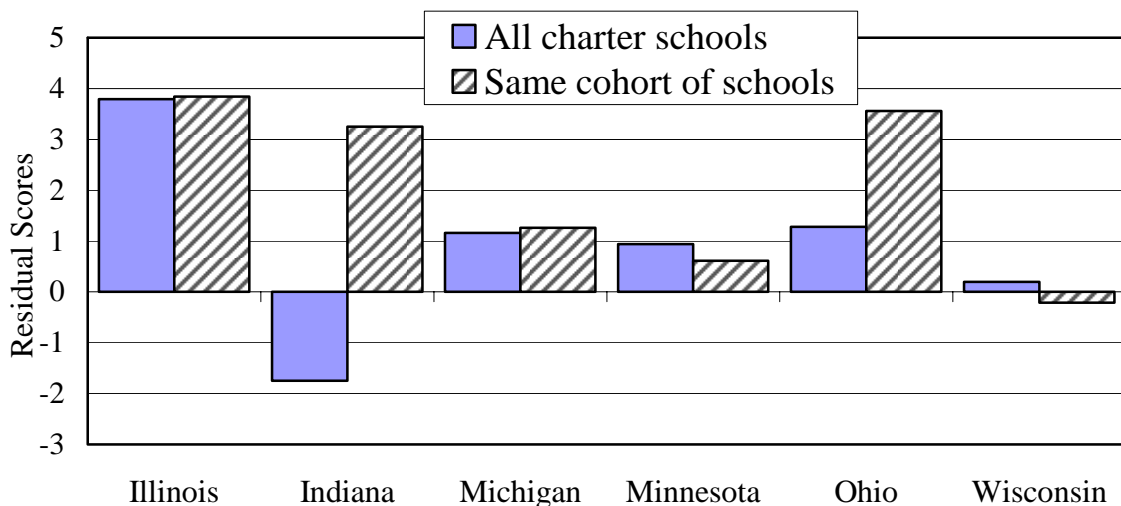
**Table 4. Comparison of Average Annual Change in Test Residuals by Grade for Charter Schools and Charter School Cohorts Over Five Years**

| <i>Illinois</i>                                     | <i>Grade 5 Math</i> | <i>Grade 5 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 8 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 11 Reading</i> | <i>Totals</i> |
|---|---------------------|------------------------|-----------------------------------|-----------------------------------|----------------------|-------------------------|---------------|
| Average Annual Change in Residuals                  | +2.10               | +2.16                  | +4.51                             | +2.79                             | +5.33                | +5.85                   | +3.79         |
| Average Annual Change in Residual Scores for Cohort | +2.15               | +1.43                  | +5.33                             | +2.75                             | +5.47                | +5.90                   | +3.84         |
| <i>Indiana</i>                                      | <i>Grade 3 Math</i> | <i>Grade 3 Reading</i> | <i>Grade 6 Math &amp; Reading</i> | <i>Grade 8 Math &amp; Reading</i> | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Average Annual Change in Residuals                  | +3.35               | +3.25                  | +5.62                             | -16.13                            | -3.19                | -3.40                   | -1.75         |
| Average Annual Change in Residual Scores for Cohort | +4.63               | +3.58                  | +2.31                             | +11.17                            | -3.28                | +1.23                   | +3.27         |
| <i>Michigan</i>                                     | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 7 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 11 Reading</i> | <i>Totals</i> |
| Average Annual Change in Residuals                  | +2.51               | +1.88                  | +1.53                             | +0.93                             | -0.31                | +0.40                   | +1.16         |
| Average Annual Change in Residual Scores for Cohort | +2.92               | +2.09                  | +2.31                             | +1.13                             | -0.92                | +0.02                   | +1.26         |
| <i>Minnesota</i>                                    | <i>Grade 5 Math</i> | <i>Grade 5 Reading</i> | <i>Grade 7 Math</i>               | <i>Grade 7 Reading</i>            | <i>Grade 11 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Average Annual Change in Residuals                  | +1.60               | +1.03                  | +1.58                             | -0.10                             | +0.91                | +0.60                   | +0.94         |
| Average Annual Change in Residual Scores for Cohort | +0.60               | +0.91                  | +1.68                             | -1.01                             | +0.91                | +0.60                   | +0.61         |
| <i>Ohio</i>   | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 6 Math</i>               | <i>Grade 6 Reading</i>            | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Average Annual Change in Residuals                  | +0.43               | +3.01                  | +1.60                             | +2.66                             | -2.86                | +2.85                   | +1.28         |
| Average Annual Change in Residual Scores for Cohort | +6.87               | +7.48                  | +6.08                             | +5.08                             | -3.93                | -0.25                   | +3.56         |
| <i>Wisconsin</i>                                    | <i>Grade 4 Math</i> | <i>Grade 4 Reading</i> | <i>Grade 8 Math</i>               | <i>Grade 8 Reading</i>            | <i>Grade 10 Math</i> | <i>Grade 10 Reading</i> | <i>Totals</i> |
| Average Annual Change in Residuals                  | -2.61               | -3.09                  | -0.18                             | -0.19                             | +3.77                | +3.54                   | +0.20         |
| Average Annual Change in Residual Scores for Cohort | -0.43               | -1.13                  | +0.23                             | +0.16                             | -0.48                | +0.39                   | -0.21         |

Table 4 summarizes data used to determine longitudinal trends for changes in annual residual scores across the six Great Lakes states. In the table, one row for each state indicates how much and in which direction residual scores have changed over time for all of a state's charter schools. A second row for each state offers the same information for the cohort of same schools that were tracked over time. As noted and explained above, the authors believe the cohort results provide a better estimate of charter schools' impact and their ability to improve student achievement over time.

While it is important not to confuse the change rate with performance, these data provide important information: the average annual change in residuals is sensitive to schools that may be performing poorly but are making improvements over time. For example, a school may have had all negative residual scores, but if scores are becoming gradually less negative over time, the average annual change score is positive.<sup>6</sup>

Figure 3 illustrates the average annual change in residual scores by state. These aggregated findings mask considerable differences among the schools and even within schools over time. The figure contains results for all charter schools as well as for the cohort of same schools that had data available for all years that we tracked. The cohort of schools usually represents less than half of all the schools, but these are schools that have remained open and have had a chance to establish themselves. In general, however, this representation of the data contained in Table 4 offers an immediate snapshot of trends and patterns of growth over time.



**Figure 3. Average Annual Change in Residual Scores by State**

On the whole, states with the newest reforms and states with the lowest overall test results for their charter schools are making the largest improvements over time. The older charter school states such as Minnesota, Wisconsin, and Michigan are showing only modest improvements over time.

## *Summary and Discussion of Findings*

This study asked two central questions about charter schools' current performance levels on state assessments and whether they appear to be improving over time. Answers to these questions are summarized below.

### **How does student achievement in charter schools compare with student achievement in demographically similar, traditional public schools?**

- Charter schools in the Great Lakes states are not currently outperforming demographically similar, traditional public schools.
- The relatively youngest reforms in Indiana and Ohio have the lowest performance levels in the region.
- Illinois has the highest relative results, perhaps because some 15 percent of its charter schools have closed since 2000. When poorly performing schools are eliminated, aggregate results for the remaining schools rise.
- At the school level, a number of successful charter schools consistently perform better on their respective state assessments than predicted. This is true for only some 40 percent of the schools, however; 60 percent of the charter schools are performing more poorly than predicted.

### **Do charter schools show promise of being an effective strategy for improving student achievement over time, even if they are not yet outperforming traditional public schools?**

- Trends indicate that generally, charter schools are making notable gains in achievement over time.
- The older reform states, including Minnesota, Wisconsin and Michigan, are experiencing a relatively slow rate of improvement over time.
- Relatively newer reform states, Ohio and Indiana, have the poorest current results; their rate of improvement over time is relatively large, however.

Although there have been a number of multistate or national studies of student achievement in charter schools nearly all of these have relied on cross-sectional designs that yield little or no information about relative change over time.<sup>7</sup> With its longitudinal design, this study has addressed that key area and significantly extends the knowledge base available to policymakers. Collectively, the body of evidence presents a mixed picture and provides no clear evidence that charter schools—on the whole—can perform better than traditional public schools.<sup>8</sup>

Some argue that the impact of charter schools should be measured by a random assignment study (i.e., experimental design). We believe, however, that there may never be a single authoritative and definitive study that settles the question regarding the performance of charter schools. The variations within and between states are large, and the impact of charter schools also appears to change over time. Nevertheless, studies such as this one that contrast results across

states, and also examine results over time, can provide important insights for educators and policymakers alike.

The fact that many traditional schools also perform poorly should not be used as a justification for excusing charter schools from meeting the standards they agreed to in their contracts. The intention of charter school reform was not to replicate the existing system, which many argue suffers from a lack of accountability. Rather, charter schools were envisioned as a means of pressuring traditional public schools to improve, both by example and through competition. If the charter school reform is to serve as a lever for change, it must demonstrate accountability: overall, charter schools should outperform similar district schools on standardized tests. Aside from recent advancements in Illinois, charter school reforms in the Great Lakes Region have so far failed to meet this key expectation.

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## Notes and References

- <sup>1</sup> Relevant studies or evaluations of student achievement in charter schools are reviewed in the state specific appendices.
- <sup>2</sup> For example, the NAEP, college entrance examinations, or tests developed and administered for largely diagnostic purposes. The perceived importance of these other tests is negligible and varies by schools since they are not high-stakes test.
- <sup>3</sup> Each state's accountability system has relied on a high stakes test at 3 or 4 grade levels over the past 7-10 years. More recently and in response to the requirements of NCLB, states have been adding high stakes test at more grades until they now when they are testing at grades 3-8 as well as 1 or 2 high school grade levels. For our analysis it was important to follow relative progress over time, so we sought to include only grade level tests that could be tracked over 5 consecutive years were used.
- <sup>4</sup> National Center for Education Statistics Common Core of Data web site: <http://nces.ed.gov/ccd/>
- <sup>5</sup> Miron, G., & Nelson, C. (2002). *What's public about charter schools: Lessons learned about choice and accountability*. Thousand Oaks, CA: Corwin Press.
- <sup>6</sup> The average annual change score is computed for patterns of actual, predicted, and residual scores across time by subtracting the first score from the most recent and dividing by the number of observations (that is, years) minus 1.
- <sup>7</sup> Lubienski, C., & Lubienski, S. (2006). *Charter, private, public schools and academic achievement: New evidence from NAEP mathematics data*. Research paper #111. New York: National Center for the Study of Privatization in Education, Teachers College, Columbia University.
- Carnoy, M., Jacobsen, R., Mishel, L., & Rothstein, R. (2005). *The charter school dust-up: Examining the evidence on enrollment and achievement*. Washington, DC: Economic Policy Institute.
- Hoxby, C. (2004). *Achievement in charter schools and regular public schools in the United States: Understanding the differences*. Retrieved March 2007 from [http://www.economics.harvard.edu/faculty/hoxby/papers/hoxbycharter\\_dec.pdf](http://www.economics.harvard.edu/faculty/hoxby/papers/hoxbycharter_dec.pdf)
- <sup>8</sup> See Miron, G., & Nelson, C. (2004). Student achievement in charter schools: What we know and why we know so little. In K. Bulkley, & P. Wohlstetter, *Taking account of charter schools*. New York: Teachers College Press.

In this study, we synthesized the findings from 27 major studies of student achievement in charter schools. The impact rating from each study was weighed by the quality of the design of the study. The bottom-line conclusion, from this body of research was that charter schools were performing similar to or slightly lower than traditional public schools.

The National Charter School Research project at the University of Washington maintains an annotated bibliography of research studies and other writing on student achievement in charter schools, [http://www.ncsrp.org/cs/csr/print/csr\\_docs/achstud.htm](http://www.ncsrp.org/cs/csr/print/csr_docs/achstud.htm).

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