Reason
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Weighted Student Formula Yearbook Methodology

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1. Introduction

Our methodology for ranking each of the school districts in the *Weighted Student Formula Yearbook* is derived in part from the methodology used to select school districts for the 2012 Broad Prize for Urban Education (hereafter referred to as "Broad methodology").[1] The reason for doing so is that many of the school districts that we examine also fall under those that were eligible for the 2012 Broad Prize. Ranking data used for those districts are readily available online at the Broad Prize for Urban Education website.[2] We chose to replicate the Broad methodology for districts that are not included in the Broad Prize analysis but *are* included in the *Weighted Student Formula Yearbook*.

We use Broad methodology and data for ranking expected student achievement, proficiency rates and achievement gaps. The districts that were not included in the Broad data and which therefore needed to be replicated for the *Weighted Student Formula Yearbook* are Cincinnati Public Schools, Hartford Public Schools, Oakland Unified School District, Poudre School District and Minneapolis Public Schools.

2. Measures of Student Achievement and Budget Autonomy

Detailed data on various measures of student achievement were obtained for each district from federal and state records.[3] Wherever possible, data were collected by grade level, test subject (reading, mathematics, and science), race/ethnicity (African-American, Hispanic and White), and low-/non-low income status.

Measures of student achievement examined include:

- Reading, mathematics and science proficiency rates as determined by state-mandated standardized tests used for federal accountability, and
- High school graduation rates based on adjusted four-year cohort graduation rates.

District budget data were collected for each district in the *Weighted Student Formula Yearbook* to determine each district's level of principal autonomy over school budgets. Also, we determine how well each district is implementing weighted student formula based on the number of school empowerment benchmarks reached. These benchmarks are determined to be best practices within existing weighted student formula programs, and by recommendation of other studies on student-based budgeting.

In our analysis we aim to find areas in which school districts are performing well, in regards to both student achievement and implementation of weighted student formula, and which areas need improvement. The following sections explain our methodology for ranking district performance, budget autonomy and weighted student formula implementation in the *Weighted Student Formula Yearbook*.

Proficiency Rates

Some of the most important indicators of student performance include scores on state-mandated achievement tests and trends in these scores over time.[4] State test data were used to calculate proficiency rates in reading, mathematics and science across grades (3^{rd} – 12^{th}), for the aggregate student population and for five disaggregated groups of students (White, African-American, Hispanic, Low-income and Non-low-income students) per school district. Weighted by the number of test-takers at each grade level, student proficiency rates for the aggregate student population and for each of the five disaggregated student groups mentioned above were averaged across elementary school grades (3^{rd} – 5^{th}), middle school grades (6^{th} – 8^{th}), and high school grades (9^{th} – 12^{th}). These average proficiency rates were calculated for reading, mathematics and science each year from 2008 to 2011.[5] In other words, our final proficiency rate data set had a proficiency rate for each district (where available) for:

- Each of three test subjects: reading, mathematics and science;
- Each of three grade levels: elementary, middle and high school;
- Each of four years: 2008, 2009, 2010 and 2011,
- And each of six student groups: Aggregate (overall), African-American, White, Hispanic, Low-income and Non-low-income.

If proficiency rate and enrollment data were available for all test subjects, grade levels, years and students groups listed above, each school district would have 216 proficiency rate data points. However, due to differences across states and school districts in demographic make-up, state standardized tests and reporting, few districts in our dataset have all 216 proficiency rate data points available. These inconsistencies are controlled for by our method of ranking each school district performance metric relative to other school districts in a given state, described below. If a school district in the *Weighted Student Formula Yearbook* is missing one or more of these data points, affecting measurement of a performance metric, it is noted in the school district's chapter.

Cross-State and Within-State District Comparisons

In addition to the absence of some data points, standardized tests differ across states in a number of ways. Rigor of test standards, proficiency requirements, cut points (scale score ranges), school grades tested and testing requirements for English Language Learners and students with disabilities may differ.[6] Also, state tests may have changed during the period of 2008 to 2011. State test changes and grades used in our analysis, by state, can be found under Table 1.2 at BroadPrize.org.[7]

Some states or districts may be subject to "ceiling effects" or "floor effects." Ceiling effects occur when a district may not show significant improvement in proficiency rates over time because they are already high-performing. Floor effects occur if a district is already relatively low-performing, therefore comparing proficiency across one year may show that a district is much worse off than other districts, but its growth in proficiency rates over time may be much higher than an already high-performing district. Due to differences in state tests and standards of proficiency, district proficiency rates cannot be compared directly across states.

To allow for cross-state district comparisons, we chose to take an approach that shows how a district is performing relative to other eligible districts in its state.

Within-State Performance Metric Rankings

We accomplish measuring a district's performance relative to other districts within the context of its state by creating decile rankings for seven performance metrics. First we sort school districts, by state, from lowest (worst) performing district to highest (best) performing district on each performance metric. Then, the total number of available school districts, per state, for each performance metric ranking is calculated. This number is divided by 10 in order to construct decile rankings for each performance metric. Based on the total number of available districts per performance metric, the available districts are then placed into one of the 10 decile ranks, with the 10^{th} decile being the worst performing and the 1^{st} decile being the best performing.

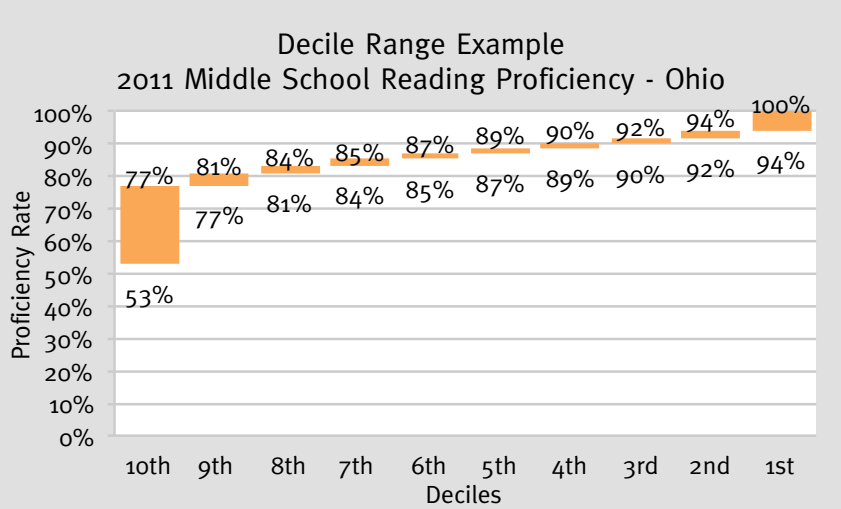
For example, suppose the performance metric that we intend to rank is 2011 reading proficiency rates among middle school students in Ohio. Ohio's school districts are first ranked from the district with the lowest reading proficiency rate for middle school students to the highest. We then calculate the number of available districts within this performance metric. (If a student group makes up less than five percent of its district population per grade level then that district is suppressed.)

In 2011 the Ohio Department of Education reported 609 school districts in its FY2011 district profile report.[8] However, in our data, only 543 of Ohio's school districts have statistically significant middle school reading proficiency rates. Therefore, when dividing this performance metric into deciles, approximately 53 school districts in Ohio fall into each decile rank based on a range of proficiency rates. Table 1 illustrates Ohio's decile distribution for this performance metric.

In this example, if a district in Ohio has an average middle school reading proficiency rate of 76 percent, it would fall into the 10th decile, which is the bottom 10 percent of districts within Ohio for this performance metric.

Table 1: Ohio Middle School Reading Proficiency Rates 2011

Deciles	Proficiency Rate Range
10th	53.00 – 77.00%
9th	77.36 – 81.08%
8th	81.16 – 83.57%
7th	83.58 – 85.23%
6th	85.25 – 87.10%
5th	87.18 – 88.55%
4th	88.64 – 90.08%
3rd	90.12 – 91.86%
2nd	91.91 – 94.18%
1st	94.23 – 100.0%



Because testing standards differ from state to state, a proficiency rate of 76 percent in one state may have a very different standing in another state. We continue the previous example to illustrate this.

Suppose a district in Colorado also has a middle school reading proficiency rate of 76 percent. The same ranking method is applied to Colorado, but the range of proficiency rates within each decile rank shifts.

Table 2 shows that the district in Colorado falls within the 3rd decile, which is the top 30 percent of districts within the state. Although in absolute terms the district in Ohio and the district in Colorado have the same middle school reading proficiency rate, the district in Colorado ranks higher than that in Ohio relative to other districts within its state's context.

Table 2: Colorado Middle School Reading Proficiency Rates 2011

Deciles	Proficiency Rate Range
10th	31.46 – 52.79%
9th	62.86 – 58.97%
8th	59.05 – 63.00%
7th	63.13 – 66.90%
6th	66.96 – 69.58%
5th	69.74 – 72.80%
4th	72.97 – 75.62%
3rd	75.62 – 77.78%
2nd	77.84 – 82.81%
1st	83.30 – 89.24%

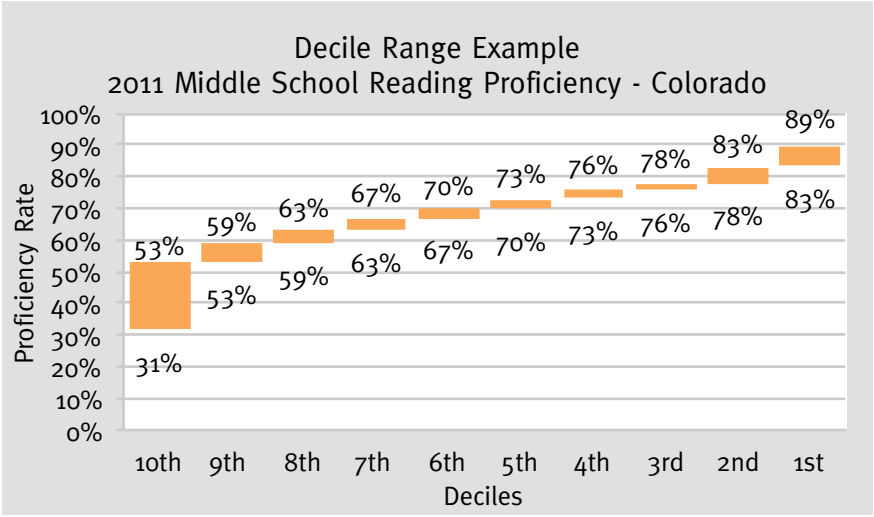


Figure 1: 2011 Middle School Reading Proficiency Rate Distribution

Since deciles are determined on a sliding scale of proficiency rates, dependent on the number of available districts, and deciles control for additional exogenous cross-state differences, relative decile rankings rather than absolute proficiency rates across states can be compared.

Decile ranks were applied to seven performance metrics, as explained in the Data Analysis Methods section, below.

Graduation Rates

We collected graduation rates from Data.gov based on four-year adjusted cohort graduation rates at the school level for school year 2010–11 (most recent data available).[9] Four-year adjusted cohort graduation rates are calculated by state education agencies in accordance with U.S. Department of Education regulations

on ESEA, Title I, published in 2008. Adjusted cohort graduation rates are reported for each school as a whole and for key student groups.

To find district graduation rates from the available school-level graduation rates, we averaged graduation rates across schools, weighted by the total number of students in each graduation cohort at each school. We calculated average district graduation rates overall and for three student groups (African-American, Hispanic, and low-income students).

Budget Autonomy

In order to determine a ranking for budget autonomy for the districts in the *Yearbook*, we calculated the percentage of the 2012–2013 unrestricted and restricted funds for each district that were allocated to the school level on a per-student basis as part of the weighted student or student-based formula. In some districts both state and federal restricted funds are included in the general operating budget, and in other districts unrestricted funds make up the general fund, and restricted grants are kept in separate funds. Some districts allocate restricted funds such as Title I and special education on a per-pupil basis through student-based budgeting while other districts manage these funds centrally. Therefore, in order to make district budgets more consistent, we include both unrestricted and restricted funding in our calculation, regardless of whether a district formally includes these funds in the general operating fund. We allowed comparability by including all major operating funds for the 2012–2013 year for every school district. We then determined what percentage of these funds went directly to individual schools and were under principals' control. The higher the percentage of yearly operating funds that are allocated to the school level, the more budget autonomy the principal enjoys. This percentage does not include school funds that were budgeted centrally for school-level operations.

3. Data Analysis Methods

We analyzed several performance metrics on student achievement to develop measures that show relative performance among the school districts addressed in the *Yearbook*. These measures included the following:

- Overall 2011 proficiency rates versus predicted (expected) proficiency rates, and improvement in predicted (expected) proficiency rates from 2008 to 2011.
- 2011 proficiency rates overall and by student group, and proficiency rate improvement from 2008 to 2011 overall and by student group.

- 2011 achievement gaps between White and African-American, White and Hispanic, and non-low-income and low-income students, and achievement gap closure from 2008 to 2011.
- 2011 high school graduation rates overall and by student group.

Actual vs. Predicted Performance and Improvement on State Tests

This measure compares actual district performance on state tests to a district's predicted performance given the percentage of low-income students at each grade level in the district. To find each district's predicted performance, we first conducted an ordinary least squares regression using the state test data mentioned above.

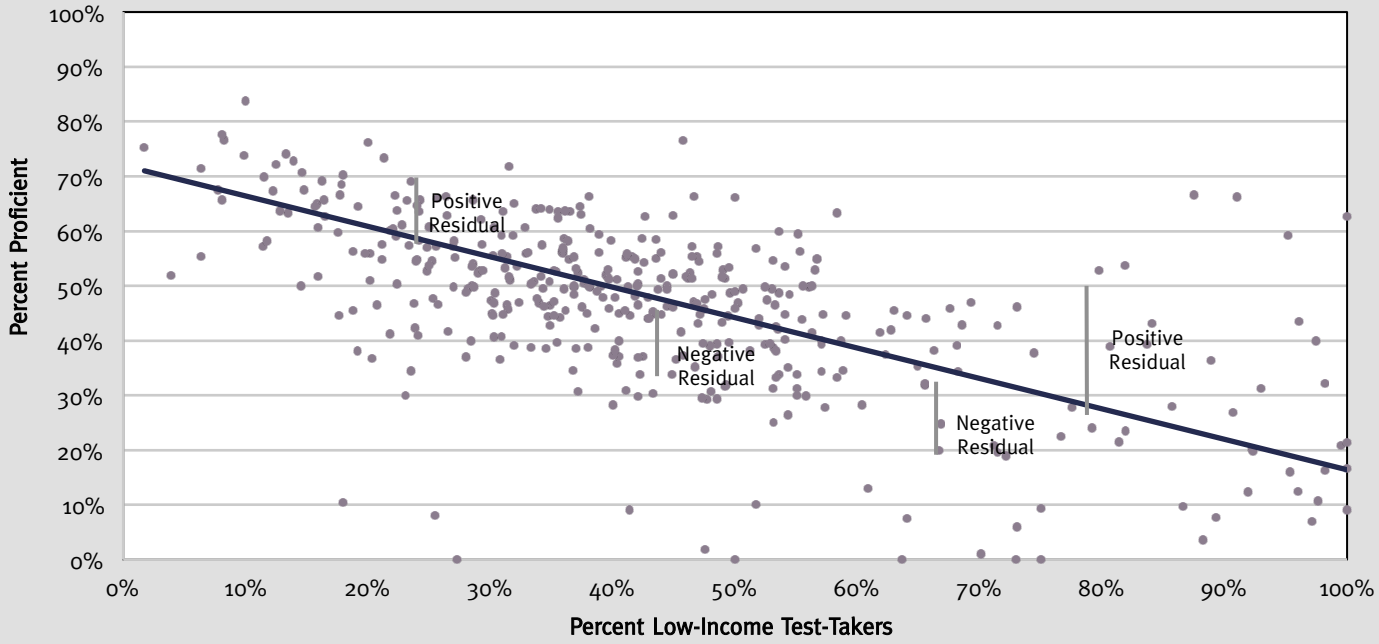
The dependent variable in the regression analysis is the percentage of test-takers in each of the three grade levels (elementary, middle and high school) in the district proficient or above on state tests in each of three test subjects (reading, mathematics and science). The independent variable is the percentage of test-takers at each grade level in the district that are low-income. Regressions were weighted by district size, as measured by student enrollment, giving greater weight to large districts and lesser weight to very small districts.[10] Separate regressions were calculated by state for each grade level, test subject, and year from 2008 to 2011.

Expected or predicted proficiency rates are calculated from each regression. For example, we run a regression with the dependent variable being high school mathematics proficiency rates, and the independent variable being the percent of low-income high school students in a given district, weighted by the district's total student enrollment. This regression then gives us the predicted values of high school mathematics proficiency rates for each district based on the percentage of low-income high school students in the given district.

We then are able to calculate residuals from the predicted values of each regression. The residual is the difference between the actual proficiency rate and the expected or predicted proficiency rate. A positive residual indicates that a district performed above expectations on state tests given the percentage of low-income students in the district, and a negative residual indicates that a district performed below expectations on state tests given the percentage of low-income students in the district.

Finally, we calculate standardized residuals in order to account for outliers in the data. To do this, we calculate the standard deviation of all residuals for each state regression. Then, we divide the residuals by the standard deviation of all residuals in each state regression.

Figure 2: Predicted vs. Actual Mathematics Proficiency Rates
Middle School Students in MN, 2011



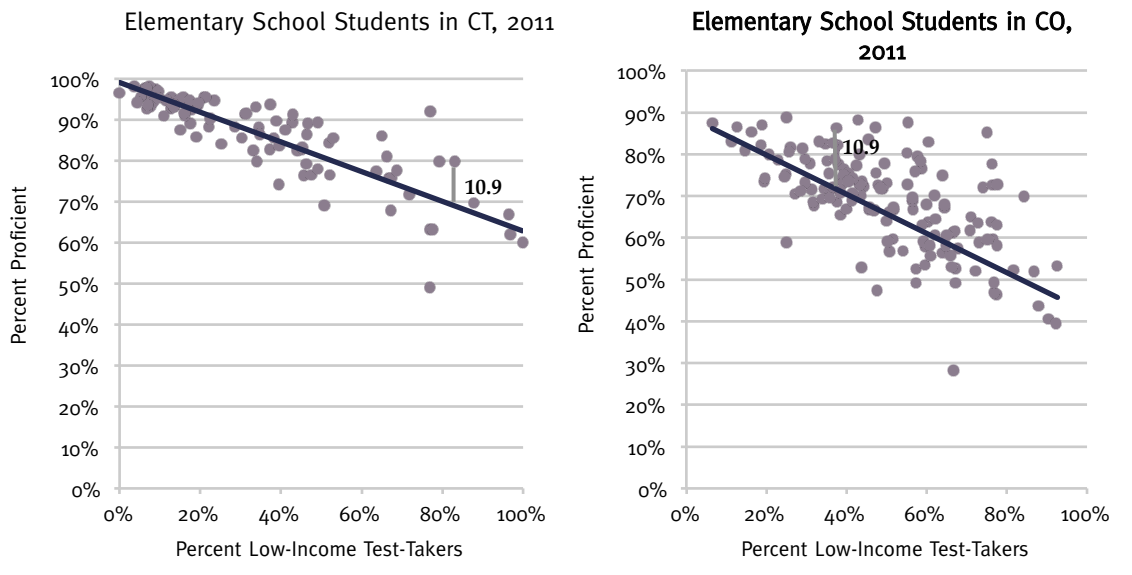
In Figure 2, above, the line is the fitted line of predicted mathematics proficiency rates among middle school students in Minnesota in 2011, given the percentage of low-income middle school students in each school district. Each of the scattered dots on the graph represents a given district's actual mathematics proficiency rate among middle school students in the given district in 2011. Districts that fall above the line show positive residuals, meaning that they performed better than how they were predicted to perform given the percentage of low-income students. Districts that fall below the line show negative residuals, meaning that they performed worse than how they were predicted to perform given the percentage of low-income students.

To reiterate, the residuals calculated are relative performance measures. A district's performance is assessed relative to that of other districts in the state, not in absolute terms. Therefore, we cannot compare residuals directly across states.

For example, in Figure 3 below, a district in Connecticut and a district in Colorado have the same residual of 10.9 percent for mathematics proficiency rates among elementary school students in 2011. This means that in both of these districts an additional 10.9 percent of elementary school students reached proficiency in mathematics, given the percentage of low-income elementary school students in each district.

However, if most districts in Connecticut perform within 5 percent of their predicted proficiency, and districts in Colorado perform within 15 percent of their predicted proficiency, the district in Connecticut is performing much better relative to the other districts in the state.

Figure 3: Predicted vs. Actual Mathematics Proficiency Rates



Separate standardized residuals were calculated for each test subject (reading, mathematics and science), grade level (elementary, middle and high school), and year (2008, 2009, 2010 and 2011) for a total of 36 possible regressions for each state.

Residuals were suppressed if their underlying data were deemed unreliable, if the predicted values from the regression were out of range (greater than 100 percent proficiency), or if the regression was not statistically significant as determined by the F statistic in each regression output.

Table 3 below, shows performance residuals for expected versus actual performance for each school district analyzed in the *Yearbook*, by grade level and test subject. The three columns on the right show the number of positive residuals (meaning the district performed better than predicted), the total number of residuals calculated (N), and the percent of residuals that are positive out of the total.

Table 3: Performance Residuals for All Students: 2011

District	State	Elementary			Middle			High			Number Positive	N	Percent Positive
		Read	Math	Sci.	Read	Math	Sci.	Read	Math	Sci.			
Eligible district average		**-0.36**	**-0.32**	**-0.29**	**-0.29**	**-0.02**	**-0.27**	**-0.24**	**0.09**	**-0.12**	**3.67**	**8.07**	**45.5%**
Baltimore City Public SS	MD	-0.89	-0.31	-0.67	-0.28	0.01	0.25	†	†	†	2	6	33.3%
Boston PS	MA	-0.11	0.14	-0.53	0.06	0.47	-0.43	0.23	1.01	0.03	6	9	66.7%
Cincinnati City PS	OH	-1.95	-1.59	-1.85	-1.22	-0.83	-1.19	0.65	-0.01	-0.22	1	9	11.1%
Denver PS	CO	-0.81	-0.62	-0.31	-0.41	0.65	-0.04	-0.06	0.47	0.15	3	9	33.3%
Hartford PS	CT	-0.20	-0.36	—	-0.43	-0.14	—	0.84	0.94	0.03	3	7	42.9%
Houston ISD	TX	0.61	0.52	0.70	0.61	0.79	0.87	-0.30	0.31	0.21	8	9	88.9%
Milwaukee PS	WI	-0.95	-0.94	-1.09	-1.53	-1.39	-1.29	-1.22	-1.14	-1.35	0	9	0.0%
Minneapolis PS	MN	-0.79	-0.68	-0.26	-0.27	-0.32	0.09	-0.20	0.36	-0.14	2	9	22.2%
New York City Dept. of Ed.	NY	0.62	0.63	0.22	0.46	0.57	0.07	0.24	0.27	—	8	8	100.0%
Newark PS	NJ	-0.15	-0.71	—	-0.18	-0.18	—	-1.23	0.03	-0.53	1	7	14.3%
Oakland USD	CA	-0.57	-0.04	—	-1.33	-0.72	—	-0.85	-0.55	—	0	6	0.0%
Poudre SD	CO	0.42	0.31	—	0.23	0.36	—	0.15	0.33	—	6	6	100.0%
Prince George's County PS	MD	-0.46	-1.12	-0.30	-0.92	-1.44	-1.58	-0.86	-1.25	-1.28	0	9	0.0%
San Francisco USD	CA	0.58	0.08	0.67	0.87	1.01	0.07	-0.80	0.01	1.27	8	9	88.9%
St. Paul PS	MN	-0.78	-0.04	0.23	0.02	0.87	0.22	0.01	0.46	0.43	7	9	77.8%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data. — Not available.
† Data were suppressed due to unreliability.

In order to compare expected versus actual performance appropriately across states, within-state decile ranks of all districts in a state regression were computed for 2011 standardized residuals. These within-state decile ranks were calculated separately for each test subject (reading, mathematics and science) for each grade level (elementary, middle and high school). Table 4 shows decile ranks for each grade level and test subject, as well as the average decile rank for each school district. The last three columns of Table 4 show the number of ranks that each district received that were in the top 30 percent (rankings 1–3) of all school districts in their state, the number of available rankings, and the percentage of rankings out of total available rankings that were in the top 30 percent of school districts in the state.

Table 4: Decile Rank of Expected Performance for All Students: 2011

District	State	Elementary			Middle			High			Avg.	Rank 1-3	Avail.	Percent Rank 1-3
		Read	Math	Sci.	Read	Math	Sci.	Read	Math	Sci.				
Eligible district average		**5**	**5**	**5**	**5**	**5**	**6**	**6**	**5**	**6**	**5.1**	**2.5**	**8.1**	**31%**
Baltimore City Public SS	MD	9	7	9	7	8	6	†	†	†	7.7	0	6	0%
Boston PS	MA	5	4	7	5	3	7	5	1	6	4.8	2	9	22%
Cincinnati City PS	OH	1	1	1	1	2	1	5	3	3	2.0	8	9	89%
Denver PS	CO	7	7	6	7	2	5	6	3	4	5.2	2	9	22%
Hartford PS	CT	3	5	3	2	4	—	1	1	5	2.7	4	7	57%
Houston ISD	TX	4	3	3	4	3	3	7	5	5	4.1	4	9	44%
Milwaukee PS	WI	9	9	9	10	10	9	10	10	10	9.6	0	9	0%
Minneapolis PS	MN	3	2	5	4	4	5	3	4	5	3.9	3	9	33%
New York City Dept. of Ed.	NY	2	2	5	3	3	6	5	5	—	3.9	4	8	50%
Newark PS	NJ	5	8	—	6	7	—	10	5	7	6.9	0	7	0%
Oakland USD	CA	4	4	—	1	3	—	4	3	—	3.2	3	6	50%
Poudre SD	CO	5	5	—	5	4	—	3	5	—	4.5	1	6	17%
Prince George's County PS	MD	7	10	8	9	10	10	10	10	10	9.3	0	9	0%
San Francisco USD	CA	3	4	3	3	2	5	8	5	2	3.9	5	9	56%
St. Paul PS	MN	9	6	4	5	3	4	6	3	4	4.9	2	9	22%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data. — Data not available.
NOTE: Ranks of 1 are the highest in the state; 10 are the lowest. The "average" column represents the average of the preceding nine columns. Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Improvement or average change in expected performance is calculated as the slope of the best fit line among the available data points from 2008 to 2011. The slope was determined by regressing the available standardized residuals on year for each school district and category. If only one data point was available, or if data were not available from 2010 through 2011, the average change was not calculated.

Like the expected performance measure, the improvement measure is also based on the relative performance of other districts in the state. A district whose proficiency rate improved over time, but at a slower rate than the regression line, would show worse improvement relative to other districts in the state. Figure 4 below illustrates three sample districts' improvement measures in reading proficiency rates among elementary school students in California.

Figure 4: Change in Residuals
Reading Proficiency Rate among Elementary School Students, CA

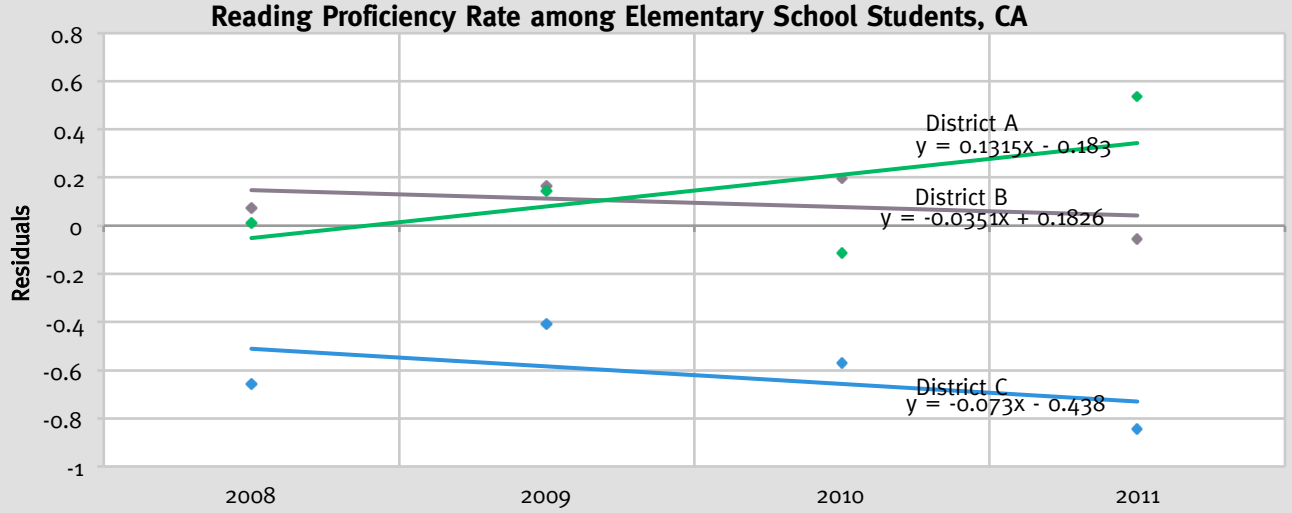


Figure 4 shows the regression lines when standardized residuals are regressed on year for proficiency rates among elementary school students in three sample districts in California. The dots corresponding with the color of each line are standardized residuals. The equations under each district give the equation of the regression line in slope-intercept form, $y = mx + b$. Where m gives the slope (average change) of the line, and b gives the intercept of the line. If the slope of the line is negative, then the district performance is lower relative to other districts in the state; if it is positive the opposite is true.

For example, District A has a positive slope (average change) of 0.1315, which indicates that this district performed better relative to others in California—the district is consistently performing above expectations. Districts B and C both have a negative slope, indicating that these districts are performing worse over time—actual proficiency rates are falling, shown by the difference between actual proficiency rates and predicted proficiency rates.

Table 5, below shows the average change in performance residuals for each school district by grade level and school subject.

Table 5: Average Change in Residuals for All Students: 2008–2011

District	State	Elementary			Middle			High			Number Positive	N	Percent Positive
		Read	Math	Sci.	Read	Math	Sci.	Read	Math	Sci.			
Eligible district average		**-0.05**	**-0.04**	**-0.07**	**-0.06**	**0.00**	**0.02**	**-0.02**	**0.01**	**0.01**	**3.53**	**8.33**	**42%**
Baltimore City Public SS	MD	-0.53	-0.27	-0.33	-0.16	0.06	-0.08	-0.21	-0.09	-0.03	1	9	11%
Boston PS	MA	-0.05	0.09	-0.11	-0.16	-0.06	-0.09	-0.14	-0.12	-0.02	1	9	11%
Cincinnati City PS	OH	0.005	0.02	-0.15	-0.05	0.03	-0.11	0.47	0.34	0.40	6	9	67%
Denver PS	CO	-0.01	0.03	-0.04	0.04	0.16	0.14	0.05	0.01	0.03	7	9	78%
Hartford PS	CT	-0.05	0.08	—	-0.27	0.00	—	0.17	0.03	-0.29	4	7	57%
Houston ISD	TX	0.01	0.02	-0.10	0.16	0.35	0.24	-0.06	0.04	-0.02	6	9	67%
Milwaukee PS	WI	-0.15	-0.15	-0.15	-0.23	-0.20	-0.22	-0.15	-0.10	-0.11	0	9	0%
Minneapolis PS	MN	0.06	-0.1	0.015	0.06	-0	0.14	0.023	0.00	-0.04	6	9	67%
New York City Dept. of Ed.	NY	0.10	0.05	0.16	0.04	0.06	0.09	0.07	0.09	—	8	8	100%
Newark PS	NJ	-0.21	-0.31	-0.44	-0.05	0.04	0.22	-0.35	-0.07	†	2	8	25%
Oakland USD	CA	-0.01	0.08	—	-0.19	-0.1	—	-0.07	-0.1	—	1	6	17%
Poudre SD	CO	0.007	-0	—	-0.09	-0.1	—	-0.02	-0.1	—	1	6	17%
Prince George's County PS	MD	0.45	0.17	0.27	0.10	-0.18	0.02	0.18	0.24	0.24	8	9	89%
San Francisco USD	CA	-0.13	-0.22	-0.05	-0.01	-0.12	-0.04	-0.04	-0.09	-0.01	0	9	0%
St. Paul PS	MN	-0.18	-0.07	0.04	-0.10	0.09	-0.09	-0.19	-0.07	-0.03	2	9	22%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data.
— Not available. † Data were suppressed due to unreliability.

Table 6: Decile Ranks of Expected Performance Improvement: 2008–2011

District	State	Elementary			Middle			High			Avg.	Rank 1-3	Avail.	% Rank 1-3
		Read	Math	Sci.	Read	Math	Sci.	Read	Math	Sci.				
Eligible district average		**6**	**6**	**6**	**5**	**5**	**5**	**6**	**5**	**5**	**5**	**1**	**8**	**11.2%**
Baltimore City Public SS	MD	10	10	10	8	6	8	8	8	8	8.4	0	9	0.0%
Boston PS	MA	6	4	7	8	6	7	7	7	6	6.4	0	9	0.0%
Cincinnati City PS	OH	5	5	**3**	4	5	4	**2**	**2**	**2**	3.6	4	9	44.4%
Denver PS	CO	6	5	6	6	4	4	6	6	6	5.4	0	9	0.0%
Hartford PS	CT	5	4	4	**1**	5	—	4	**2**	**1**	3.5	3	7	42.9%
Houston ISD	TX	5	5	6	4	**2**	4	6	4	5	4.6	1	9	11.1%
Milwaukee PS	WI	7	7	7	8	8	8	7	7	7	7.3	0	9	0.0%
Minneapolis PS	MN	4	4	5	5	4	4	5	5	5	4.6	0	9	0.0%
New York City Dept. of Ed.	NY	4	4	**3**	5	4	4	4	4	—	4.0	1	8	12.5%
Newark PS	NJ	8	9	9	7	5	**3**	9	6	†	7.0	1	8	12.5%
Oakland USD	CA	5	4	—	**3**	4	—	4	4	—	4.0	0	6	0.0%
Poudre SD	CO	5	5	—	4	5	—	5	5	—	4.8	0	6	0.0%
Prince George's County PS	MD	**2**	4	**3**	5	9	6	5	**3**	**3**	4.4	4	9	44.4%
San Francisco USD	CA	7	8	6	5	7	6	6	6	5	6.2	0	9	0.0%
St. Paul PS	MN	7	6	5	6	5	6	8	6	6	6.1	0	9	0.0%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data.
— Not available. † Data were suppressed due to unreliability.
NOTE: Ranks of 1 are the highest in the state; 10 are the lowest. The "average" column represents the average of the preceding nine columns. Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Similarly to 2011 expected proficiency rates, within-state decile ranks of all districts in a state regression were computed for the average change in residuals from 2008 to 2011 (improvement in expected performance). These within-state decile ranks were calculated separately for each test subject (reading, mathematics, and science) for each grade level (elementary, middle and high school). Table 6 shows these decile ranks.

Unadjusted Performance and Improvement on State Tests

The regression analyses for actual versus predicted (expected) performance and improvement on state tests uses the *overall* student population for each grade level and test subject from 2008 through 2011, taking into account the percentage of low-income test-takers. The unadjusted performance and improvement measures do not take low-income test-takers into account. However, these measures compare student performance within a state for each reported student group (African-American, Hispanic, and low-income).

In order to compare across states, 2011 proficiency rates for each student group and category were ranked among all districts within each state. As previously mentioned, ranking school districts shows district performance relative to other districts in the state. Then once each district is ranked, the ranking metric is used to compare district performance across states, controlling for any differences between state standardized tests.

Improvement or average change in proficiency rates from 2008 through 2011 was also calculated by district for the overall student population and each student group for each grade level and test subject mentioned above. Average change was calculated by regressing the available data points for each measure on year, by district. The average change metric obtained from each regression is the slope of the best fit line among data points from 2008 to 2011. If there was only one year of data available, or if data were unavailable for 2010 and 2011, average change was not calculated.

Table 7 below, shows decile rankings of 2011 proficiency rates and proficiency rate improvement, averaged across grade levels for each district, by test subject. Counts of best decile ranks (1-3), the total number of available ranks, and the percentage of best ranks are also shown for both 2011 proficiency rates and proficiency rate improvement.

Similar summary tables are available in Appendix A, Tables A1–A3, for African-American, Hispanic, and low-income student groups. Test data were suppressed if they were deemed unreliable or if the student group for a given test subject and grade level made up less than five percent of the student population at the given grade level.

Table 7: Average Decile Rank and Count of Best Decile Ranks (1-3) Across Grade Levels for Reading, Mathematics and Science Proficiency Rates: All Students

District	State	2011						Average change: 2008–2011					
		Avg. Decile Rank			Count of Best Ranks (1-3)			Avg. Decile Rank			Count of Best Ranks (1-3)		
		Read	Math	Sci.	Count	Avail.	Percent	Read	Math	Sci.	Count	Avail.	Percent
Eligible district average		8.8	8.3	9.2	0	8	4%	4.2	4.5	4.8	3	8	33%
Baltimore City Public SS	MD	10.0	10.0	10.0	0	9	0%	7.3	7.7	6.7	3	9	33%
Boston PS	MA	10.0	10.0	10.0	0	9	0%	5.3	5.3	5.7	0	9	0%
Cincinnati City PS	OH	9.3	9.7	10.0	0	9	0%	1.7	2.3	3.7	7	9	78%
Denver PS	CO	10.0	8.7	9.3	0	9	0%	3.3	3.0	4.7	4	9	44%
Hartford PS	CT	10.0	10.0	10.0	0	7	0%	1.7	1.0	2.0	7	7	100%
Houston ISD	TX	7.3	6.0	6.7	0	9	0%	4.0	3.3	4.3	2	9	22%
Milwaukee PS	WI	10.0	10.0	10.0	0	9	0%	4.7	3.7	4.7	2	9	22%
Minneapolis PS	MN	9.3	8.3	8.7	0	9	0%	4.0	6.7	5.7	1	9	11%
New York City Dept. of Ed.	NY	9.3	8.3	10.0	0	9	0%	2.0	—	3.0	2	2	100%
Newark PS	NJ	10.0	10.0	10.0	0	9	0%	4.3	3.3	7.7	3	9	33%
Oakland USD	CA	8.0	7.0	—	0	6	0%	3.0	3.0	—	4	6	67%
Poudre SD	CO	3.0	2.7	—	5	6	83%	6.0	6.3	—	0	6	0%
Prince George's County PS	MD	10.0	10.0	10.0	0	9	0%	4.3	6.0	3.3	4	9	44%
San Francisco USD	CA	6.3	5.3	5.3	0	9	0%	5.7	6.3	5.7	0	9	0%
St. Paul PS	MN	10.0	9.0	9.0	0	9	0%	6.3	5.3	6.0	0	9	0%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data.
— Not available. † Data were suppressed due to unreliability.
NOTE: Bold rankings in orange indicate, on average, district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Achievement Gaps

Achievement gaps are important to measure since one of the main tenets of weighted student formula is that it ensures equity in funding across *all* students in a school district. Achievement gaps are measured as the difference in proficiency rates between districts' advantaged student group and districts' disadvantaged student group. These achievement gaps are measured for elementary school, middle school and high school students and for proficiency rates in reading, mathematics and science. Three achievement gaps are calculated:

- African-American vs. White gap: This compares the performance of African-American students with White Students;
- Hispanic vs. White gap: This compares the performance of Hispanic students with White students, and
- Low-income (socio-economically disadvantaged) vs. non-low-income gap: This compares the performance of low-income students with non-low-income students.

Achievement gaps are represented by negative numbers, and the absence of achievement gaps are represented by positive numbers.

We also measure achievement gaps over time from 2008 to 2011. Measuring achievement gaps over time shows whether or not a district is improving (achievement gap is closing), or worsening (achievement gap is

growing). Achievement gap improvement is measured by taking the arithmetic mean of the growth rate of proficiency rates for each student group from 2008 to 2011, shown in Appendix B, Equation B1.

The average annual proficiency growth rate of the advantaged student group is subtracted from the average annual proficiency growth rate of the disadvantaged student group. Positive values of achievement gap improvement indicate that a district's achievement gap is closing over time, negative values indicate that a district's achievement gap is widening over time.

For example, if the average annual reading proficiency growth rate among Hispanic elementary school students is 35 percent, and is 20 percent among White elementary school students, then 35 percent minus 20 percent equals 15 percent. This positive number indicates that the reading proficiency rate among Hispanic elementary school students is improving at a faster rate than White elementary school students, and therefore the achievement gap is closing. The three achievement gaps discussed above are measured in three ways:

- Internal District Gap
- Internal District Gap vs. Internal State Gap
- External Gap: District Disadvantaged vs. State Advantaged

The following sections explain how each of these achievement gap measures is calculated.

Internal District Gap

This measure calculates each of the previously mentioned achievement gaps *within* a given district. It is difficult to accurately measure internal gaps across districts because such comparisons may be distorted by a number of factors. Some of these are the following:

- The absence of one of the student groups as a significant portion of the student population may show lower achievement gaps, when it may actually be large in comparison to the rest of the state (i.e. low population of White or non-low-income students).
- Differences between districts in the composition of analogous groups may distort the magnitude of district achievement gaps.
- Higher than average performance or improvement by the advantaged group in some districts and lower than average performance or improvement by the advantaged group in others could cause districts with lower performing advantaged groups appear to be doing a better job of closing achievement gaps.
- Ceiling or floor effects, as previously discussed, can distort comparison of district gaps across states.

Achievement gaps are represented by negative numbers in the district. For example, in District A 92 percent of non-low-income middle school students were proficient in reading in 2011 whereas only 62 percent of low-income middle school students were proficient in reading that year. Therefore:

62 – 92 = –30

This achievement gap calculation shows that 30 percent fewer low-income middle school students were proficient in reading in 2011 than non-low-income students. Similarly to the 2011 proficiency rate measure, each of the three achievement gaps measured of 2011 internal achievement gaps were ranked from largest achievement gap to smallest achievement gap among all other available districts in the state. This ranking shows how a district performed relative to other districts in the state for each achievement gap and can be compared across states. Internal achievement gap ranks are shown, by district, in Appendix B, Tables B1–B3.

An internal district gap is considered to be improving (closing) if the district's disadvantaged student proficiency rate is increasing at a faster rate than the district's advantaged group proficiency rate. An internal district gap is considered to be worsening (widening) if the district's disadvantaged student proficiency rate is decreasing, or increasing as a slower rate than the district's advantaged student proficiency rate. Internal district achievement gap improvement measures are ranked from slowest closing (or widening) achievement gap to fastest closing achievement gap among all other available districts in the state. Internal achievement gap improvement ranks are shown, by district, in Appendix B, Tables B4–B6 and can be compared across states.

A summary of the number and percent of internal district gaps closing from 2008–2011 is shown below in Table 8 by disadvantaged student group for each school district.

Table 8: Number and Percent of Internal District Gaps Closing: 2008–2011

District	State	Low Income				African-American				Hispanic			
		Clos.		Avail.	Pct.	Clos.		Avail.	Pct.	Clos.		Avail.	Pct.
Eligible district average		**3**	**/**	**8**	**34%**	**4**	**/**	**8**	**48%**	**3**	**/**	**7**	**47%**
Baltimore City Public SS	MD	0	/	9	0%	2	/	9	22%	—	/	—	—
Boston PS	MA	0	/	9	0%	2	/	9	22%	2	/	9	22%
Cincinnati City PS	OH	7	/	9	78%	8	/	9	89%	—	/	—	—
Denver PS	CO	0	/	9	0%	0	/	9	0%	1	/	9	11%
Hartford PS	CT	4	/	4	100%	6	/	6	100%	5	/	6	83%
Houston ISD	TX	8	/	9	89%	7	/	9	78%	7	/	9	78%
Milwaukee PS	WI	1	/	9	11%	3	/	9	33%	3	/	9	33%
Minneapolis PS	MN	6	/	9	67%	7	/	9	78%	6	/	9	67%
New York City Dept. of Ed.	NY	—	/	—	—	1	/	1	100%	1	/	1	100%
Newark PS	NJ	1	/	6	17%	2	/	9	22%	2	/	9	22%
Oakland USD	CA	4	/	6	67%	5	/	5	100%	5	/	5	100%
Prince George's County PS	MD	2	/	9	22%	0	/	3	0%	0	/	3	0%
Poudre SD	CO	3	/	4	75%	—	/	—	—	2	/	4	50%
San Francisco USD	CA	1	/	9	11%	6	/	9	67%	5	/	9	56%
St. Paul PS	MN	0	/	9	0%	1	/	9	11%	4	/	9	44%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data. — Not available.

Internal District versus Internal State Gap

The internal district versus internal state gap calculates a district's internal gap minus the state's internal gap. The state's internal gap is measured as the average proficiency rate of every district in the state except the weighted student formula district. In other words, district proficiency rates were removed when calculating the state averages in order to find the "rest of state" (ROS) values for comparison. It is important to remove the weighted student formula district, especially in cases where the district made up a significant population or student group population of the state's total students. If the given district were not removed, the "rest of state" average could bias results.

The internal district versus internal state gap is measured for each school level (elementary, middle and high school) and test subject (reading, math and science) for each of the three achievement gaps measured. The calculation of internal district versus internal state achievement gaps can be found in Appendix B, Equation B2.

Positive gap values indicate that the district is outperforming the state on this measure, and negative gap values indicate that the district is performing worse than the rest of the state.

Improvement in internal district versus internal state achievement gaps is measured from the average annual proficiency growth rate of the district and state proficiency rates for each test subject and grade level. We take the difference of the state advantaged group and state disadvantaged group average annual proficiency growth rate for a given subject to find the internal state gap improvement. We then compare the average annual growth rate of the internal district gap improvement with the internal state gap improvement to find if the internal district gap is closing faster than the internal state gap. Again, positive values indicate that the internal district gap is closing at a faster rate than the internal state achievement gap. Table 9 shows the number and percent of internal district versus internal state achievement gaps closing by district and type of achievement gap.

Table 9: Number and Percent of Internal District vs. Internal State Gaps Closing: 2008–2011

District	State	Low Income			African-American			Hispanic		
		Clos.	Avail.	Pct.	Clos.	Avail.	Pct.	Clos.	Avail.	Pct.
Eligible district average		**1**	**8**	**11%**	**2**	**7**	**27%**	**2**	**7**	**26%**
Baltimore City Public SS	MD	0	9	0%	1	9	11%	—	—	—
Boston PS	MA	0	9	0%	0	9	0%	2	9	22%
Cincinnati City PS	OH	2	9	22%	4	9	44%	—	—	—
Denver PS	CO	0	9	0%	0	1	0%	0	9	0%
Hartford PS	CT	3	4	75%	5	6	83%	2	6	33%
Houston ISD	TX	2	9	22%	5	9	56%	6	9	67%
Milwaukee PS	WI	0	9	0%	0	9	0%	1	9	11%
Minneapolis PS	MN	0	9	0%	3	9	33%	3	9	33%
New York City Dept. of Ed.	NY	—	—	—	0	1	0%	0	1	0%
Newark PS	NJ	1	6	17%	1	9	11%	1	9	11%
Oakland USD	CA	1	6	17%	4	5	80%	4	5	80%
Poudre SD	CO	1	4	25%	—	—	—	1	4	25%
Prince George's County PS	MD	1	9	11%	0	3	0%	0	3	0%
San Francisco USD	CA	1	9	11%	3	9	33%	2	9	22%
St. Paul PS	MN	0	9	0%	0	9	0%	1	6	17%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data. — Not available.

External Gap: District Disadvantaged versus State Advantaged

This measure is used to compare the performance of the district's disadvantaged student group to that of the state's advantaged group. As previously mentioned, the state's advantaged group proficiency rate is the average of all districts in the state except for the weighted student formula district.

The external gap is measured for each grade level (elementary, middle and high school) and test subject (reading, mathematics and science) from 2008 to 2011. The external achievement gap calculation formula can be found in Appendix B, Equation B3.

Positive gap values indicate that the district is outperforming the state on this measure. Generally, this achievement gap will always be negative.

We also measure the rate of increase in proficiency from 2008 to 2011 for the district disadvantaged group and compare it to the rate of increase in proficiency from 2008 to 2011 for the state advantaged group to find which group is increasing its proficiency faster.

If a district's disadvantaged group is showing a higher growth rate in proficiency than the rest of state advantaged group, then this is counted as an external gap closure. Table 10 shows the number of external gap closures by student group for each weighted student formula district.

Table 10: Number and Percent of External Gaps Closing: 2008–2011

District	State	Low Income			African-American			Hispanic		
		Clos.	Avail.	Pct.	Clos.	Avail.	Pct.	Clos.	Avail.	Pct.
Eligible district average		**4**	**8**	**44%**	**4**	**8**	**47%**	**4**	**8**	**58%**
Baltimore City Public SS	MD	3	9	33%	3	9	33%	—	—	—
Boston PS	MA	0	9	0%	2	9	22%	4	9	44%
Cincinnati City PS	OH	6	9	67%	5	9	56%	—	—	—
Denver PS	CO	4	9	44%	2	9	22%	6	9	67%
Hartford PS	CT	4	7	57%	4	7	57%	4	7	57%
Houston ISD	TX	8	9	89%	8	9	89%	8	9	89%
Milwaukee PS	WI	4	9	44%	6	9	67%	6	9	67%
Minneapolis PS	MN	6	9	67%	5	9	56%	5	9	56%
New York City Dept. of Ed.	NY	—	—	—	1	1	100%	1	1	100%
Newark PS	NJ	3	9	33%	3	9	33%	5	9	56%
Oakland USD	CA	0	6	0%	1	5	20%	1	5	20%
Poudre SD	CO	4	4	100%	—	—	—	3	5	60%
Prince George's County PS	MD	6	9	67%	5	9	56%	6	9	67%
San Francisco USD	CA	1	9	11%	5	9	56%	5	9	56%
St. Paul PS	MN	2	9	22%	3	9	33%	3	9	33%

Source: 2012 Broad Prize for Urban Education summary data and Reason Foundation analysis of state test data. — Not available.

Graduation Rates

We record the 2010–11 average four-year cohort graduation rates for each district in the *Yearbook* overall and for three student groups (African-American, Hispanic, and low-income). We also rank 2010–11 district average graduation rates from lowest to highest for each state. Ranks are given to each district for the

overall 2010–11 average graduation rate, and for three student groups 2010–11. Ranks are shown by district in Table 11, as well as a count of the number of instances where a district graduation rate rank is among the top 30 percent of districts in their state.[11]

Because 2012 is the first year that full four-year cohort graduation rates were available, graduation rate improvements could not be taken into account.

Table 11: 2011 Four-Year Cohort Graduation Rates

District	State	Total		Low Income		African-American		Hispanic		Count of Best (1-3)
		Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	
Eligible district average		**69%**	**9**	**67%**	**7**	**65%**	**6**	**61%**	**6**	0
Baltimore City Public SS	MD	67.1%	10	65.8%	10	66.9%	9	61.9%	5	0
Boston PS	MA	64.7%	10	64.3%	8	61.5%	5	56.8%	4	0
Cincinnati City PS	OH	64.5%	9	68.1%	7	64.0%	5	50.0%	**3**	1
Denver PS	CO	57.5%	8	53.0%	6	60.4%	**3**	55.1%	7	1
Hartford PS	CT	73.2%	9	71.6%	**3**	74.8%	**3**	63.7%	5	2
Houston ISD	TX	80.5%	7	82.1%	5	79.1%	5	77.5%	7	0
Milwaukee PS	WI	65.1%	10	63.5%	7	63.9%	4	60.0%	4	0
Minneapolis PS	MN	53.7%	9	47.0%	10	44.9%	9	41.0%	10	0
New York City Dept. of Ed.	NY	69.2%	10	69.6%	6	64.7%	5	61.5%	5	0
Newark PS	NJ	64.9%	10	66.8%	8	64.9%	6	60.4%	7	0
Oakland USD	CA	61.7%	10	66.7%	10	58.8%	10	59.6%	10	0
Poudre SD	CO	84.2%	4	70.2%	4	62.1%	**3**	72.8%	**3**	2
Prince George's County PS	MD	74.9%	10	73.3%	7	76.9%	6	57.5%	7	0
San Francisco USD	CA	82.3%	8	81.8%	7	72.2%	8	69.3%	9	0
St. Paul PS	MN	67.9%	8	62.7%	5	56.0%	4	63.7%	**2**	1

Source: Data.gov 4-Year Cohort Adjusted Graduation Rates, Reason Foundation analysis. NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

4. Grading Methods

Each district in the *Weighted Student Formula Yearbook* is graded across 12 categories related to student achievement, principal budget autonomy and weighted student formula implementation. These categories are:

(1) 2011 Proficiency Rates

(2) Proficiency Rate Improvement

(3) Expected versus Actual Performance in Student Proficiency

(4) Expected Proficiency Improvement

(5) 2011 Graduation Rates

(6) 2011 Achievement Gaps

(7) Achievement Gap Improvement

Achievement Gap Closures

(8) Internal District Achievement Gap

(9) Internal District versus Internal State Achievement Gap

(10) External Achievement Gap

(11) School Empowerment Benchmarks

(12) Principal Autonomy

The method of grading each of these categories is described below. Areas in which a district performed exceptionally well and others in which a district performed poorly relative to other districts in the *Weighted Student Formula Yearbook* are described in the "Performance Outcomes" section under each district's profile.

Proficiency Rates

Rankings for "2011 proficiency rates" and improvement or "average change" in proficiency rates from 2008 to 2011 were used to assign points to each of these categories. If available, each category gives a rank for each grade level (elementary, middle and high school), test subject (mathematics, reading and science), and student group (overall student population, African-American, Hispanic, and low-income students). Therefore, a total of 36 possible ranks could be assigned points for the 2011 proficiency rates and improvement in proficiency rates categories. Table 12 below shows the number of points given to each decile rank.

Table 12: Points per Decile Rank

Points	Decile(s)
10	1
9	2
8	3
7	4
6	5
4	6
3	7
2	8
1	9
0	10

Table 13: Letter Grade per Percentile

Letter Grade	Percentiles
A	90 - 100%
A-	80 - 89%
B+	70 - 79%
B	60 - 69%
B-	50 - 59%
C+	40 - 49%
C	30 - 39%
C-	20 - 29%
D	10 - 19%
F	0 - 9%

The numbers of points given from the 5th to the 6th decile drops by two points since districts falling in the 6th–10th deciles are in the bottom 50 percent of districts in a given state for that ranking.

If a given district had all 36 rankings available for 2011 proficiency rates, and for proficiency rate improvement, then the district total possible points for each category would be 360 (36 x 10 points for the highest decile rank). The actual points received for this category divided by the total points possible yields the percentage of points gained out of total possible. These percentages for each district are divided into 10 percentiles. Districts receive a letter grade for each category depending on their percentile of points gained out of the total possible. Table 13 shows the letter grades given for each of the 10 percentiles.

Table 14 below shows the 10 percentiles and range of percentages per percentile used to assign letter grades for 2011 proficiency rates and proficiency rate improvement.

Table 14: Grade Percentiles: 2011 Proficiency Rates and Proficiency Rate Improvement

2011 Proficiency Rates				Proficiency Rate Improvement			
Range		Percentile	Grade	Range		Percentile	Grade
Low	High			Low	High		
0.0%	1.9%	10	F	0.0%	38.3%	10	F
2.0%	9.4%	20	D	39.0%	42.2%	20	D
9.5%	10.4%	30	C-	42.5%	43.3%	30	C-
10.4%	10.9%	40	C	43.5%	44.2%	40	C
10.9%	15.9%	50	C+	45.0%	50.7%	50	C+
16.0%	19.6%	60	B-	51.0%	55.2%	60	B-
20.0%	23.0%	70	B	56.0%	61.7%	70	B
24.0%	32.6%	80	B+	62.0%	66.8%	80	B+
33.0%	50.6%	90	A-	67.0%	73.7%	90	A-
51.0%	100.0%	100	A	74.0%	100.0%	100	A

Table 15 below shows the points that each school district received and the total possible that it could have received based on availability of data, as well as the grade given for 2011 proficiency rates and proficiency rate improvement.

Table 15: 2011 Proficiency Rate and Improvement in Proficiency Rate Grades

District	2011 Proficiency Rates					Improvement in Proficiency Rates				
	Points	/	Pos.	Percent	Rank	Points	/	Pos.	Percent	Rank
Baltimore City Public SS	2	/	270	0.7%	F	66	/	270	24.4%	F
Boston PS	39	/	360	10.8%	C	159	/	360	44.2%	C
Cincinnati City PS	43	/	270	15.9%	C+	199	/	270	73.7%	A-
Denver PS	28	/	270	10.4%	C-	177	/	280	63.2%	B+
Hartford PS	28	/	280	10.0%	C-	216	/	280	77.1%	A
Houston ISD	182	/	360	50.6%	A-	222	/	360	61.7%	B
Milwaukee PS	7	/	360	1.9%	F	193	/	360	53.6%	B-
Minneapolis PS	59	/	360	16.4%	B-	152	/	360	42.2%	D
New York City Dept. of Ed.	76	/	330	23.0%	B-	38	/	50	76.0%	N/A*
Newark PS	32	/	360	8.9%	D	172	/	360	47.8%	C+
Oakland USD	69	/	220	31.4%	B+	147	/	220	66.8%	B+
Prince George's County PS	36	/	330	10.9%	C+	160	/	290	55.2%	B-
Poudre SD	105	/	150	70.0%	A	65	/	150	43.3%	C-
San Francisco USD	122	/	360	33.9%	A-	138	/	360	38.3%	F
St. Paul PS	82	/	360	22.8%	B	153	/	360	42.5%	C-

* New York City Department of Education was not given a grade for proficiency rate improvement because there were so few data points available for this metric due to test changes year to year. See New York City Department of Education chapter for details.

In each district's chapter the grade given for proficiency rate improvement is relative to the other school districts in the *Weighted Student Formula Yearbook* other than New York City Department of Education. Therefore, any given district's ranking and grade is out of 14 rather than 15 school districts.

Expected Performance

Points and letter grades for the categories "2011 Expected Performance" and "Growth in Expected Performance" are calculated similarly to the proficiency rate categories. However, because expected

performance calculations were not calculated among student groups, only 9 rankings are available for each category. Therefore if a given district had available all 9 rankings, the total possible categories that a district could earn points for would be 9, multiplied by 10 (the highest number of points given to a decile ranking of 1, as shown in Table 12), which gives the highest number of points possible being 90.

The number of points earned for a given category was divided by the total points possible to find the percentage of points earned out of total possible points. From this percentage a letter grade was assigned to each district. Letter grades were determined by dividing the category percentages into 10 percentiles. If a district fell into the bottom 10 percent of all districts it received an "F" letter grade. If a district fell into the top 10 percent of all districts it received an "A" letter grade.

Table 16 below shows the 10 percentiles and range of percentages per percentile used to assign letter grades for 2011 expected performance and expected performance improvement.

Table 16: Grade Percentiles: 2011 Expected Performance and Expected Performance Improvement

2011 Expected Performance				Expected Performance Improvement			
Range				Range			
Low	High	Percentile	Grade	Low	High	Percentile	Grade
0.0%	6.7%	10	F	0.0%	26.3%	10	F
7.0%	18.9%	20	D	27.0%	31.2%	20	D
19.0%	28.3%	30	C-	32.0%	36.7%	30	C-
28.4%	34.4%	40	C	37.0%	39.2%	40	C
35.0%	51.4%	50	C+	40.5%	40.0%	50	C+
52.0%	55.0%	60	B-	41.0%	44.4%	60	B-
56.0%	58.9%	70	B	45.0%	48.9%	70	B
59.0%	64.7%	80	B+	49.0%	58.3%	80	B+
65.0%	70.0%	90	A-	59.0%	63.3%	90	A-
71.0%	100.0%	100	A	64.0%	100.0%	100	A

Table 17 shows the points that each school district received and the total possible that it could have received based on availability of data, as well as the grade given for 2011 expected performance and expected performance improvement.

Table 17: 2011 Expected Performance and Improvement in Expected Performance Grades

District	2011 Expected Performance				Improvement in Expected Performance			
	Points	Pos.	Percent	Rank	Points	Pos.	Percent	Rank
Baltimore City Public SS	14	/ 60	23.3%	C-	14	/ 90	15.6%	F
Boston PS	53	/ 90	58.9%	B	33	/ 90	36.7%	C-
Cincinnati City PS	13	/ 90	14.4%	D	49	/ 90	54.4%	B+
Denver PS	47	/ 90	52.2%	B-	44	/ 90	48.9%	B
Hartford PS	36	/ 70	51.4%	C+	25	/ 70	35.7%	C-
Houston ISD	61	/ 90	67.8%	B+	56	/ 90	62.2%	A-
Milwaukee PS	4	/ 90	4.4%	F	24	/ 90	26.7%	D
Minneapolis PS	35	/ 90	38.9%	C+	43	/ 90	47.8%	B
New York City Dept. of Ed.	56	/ 80	70.0%	A-	56	/ 80	70.0%	A
Newark PS	27	/ 90	30.0%	C	21	/ 80	26.3%	F
Oakland USD	17	/ 60	28.3%	C-	24	/ 60	40.0%	C+
Prince George's Co. PS	6	/ 90	6.7%	F	57	/ 90	63.3%	A-
Poudre SD	37	/ 60	61.7%	B+	23	/ 60	38.3%	C
San Francisco USD	63	/ 90	70.0%	A-	36	/ 90	40.0%	C+
St. Paul PS	52	/ 90	57.8%	B-	37	/ 90	41.1%	B-

Internal District Achievement Gaps

Points and letter grades for the categories "2011 Achievement Gaps" and "Improvement in Achievement Gaps" are also calculated in a similar fashion as those mentioned above. Each district was given a rank for 2011 internal achievement gap and improvement in internal achievement gaps for all grade levels (elementary, middle and high school), test subjects (math, reading and science), and three achievement gaps (low-income vs. non-low-income, African-American vs. White, and Hispanic vs. White). Therefore, the total number of rankings a district could have is 27, and the total number of points a district could have is 270.

Table 18 below shows the 10 percentiles and range of percentages per percentile used to assign letter grades for 2011 achievement gaps and achievement gap improvement.

Table 18: Grade Percentiles: 2011 Achievement Gaps and Achievement Gap Improvement

2011 Achievement Gaps				Achievement Gap Improvement			
Range				Range			
Low	High	Percentile	Grade	Low	High	Percentile	Grade
0.0%	3.3%	10	F	0.0%	25.3%	10	F
34.0%	12.8%	20	D	26.0%	27.5%	20	D
13.0%	15.9%	30	C-	28.0%	38.8%	30	C-
16.0%	17.4%	40	C	39.0%	40.0%	40	C
17.5%	18.9%	50	C+	41.0%	43.3%	50	C+
19.0%	27.5%	60	B-	43.5%	44.8%	60	B-
28.0%	33.0%	70	B	44.9%	45.6%	70	B
33.0%	39.0%	80	B+	46.0%	64.4%	80	B+
40.0%	55.0%	90	A-	65.0%	70.6%	90	A-
56.0%	100.0%	100	A	71.0%	100.0%	100	A

Table 19 below shows the points that each school district received and the total possible that it could have received based on availability of data, as well as the grade given for 2011 internal district achievement gaps and improvement in internal district achievement gaps.

Table 19: 2011 Internal District Achievement Gaps and Internal District Achievement Gap Improvement Grades

District	2011 Internal District Gap				Internal District Gap Improvement			
	Points	Pos.	Percent	Rank	Points	Pos.	Percent	Rank
Baltimore City Public SS	99	/ 180	55.0%	A-	45	/ 180	25.0%	F
Boston PS	89	/ 270	33.0%	B	118	/ 270	43.7%	B-
Cincinnati City PS	34	/ 180	18.9%	C+	96	/ 180	53.3%	B+
Denver PS	6	/ 180	3.3%	F	48	/ 190	25.3%	F
Hartford PS	31	/ 210	14.8%	C-	127	/ 160	79.4%	A
Houston ISD	104	/ 270	38.5%	B+	174	/ 270	64.4%	B+
Milwaukee PS	72	/ 270	26.7%	B-	123	/ 270	45.6%	B
Minneapolis PS	5	/ 270	1.9%	F	116	/ 270	43.0%	C+
New York City Dept. of Ed.	35	/ 220	15.9%	C-	12	/ 20	60.0%	N/A*
Newark PS	94	/ 270	34.8%	B+	93	/ 240	38.8%	C-
Oakland USD	44	/ 160	27.5%	B-	113	/ 160	70.6%	A-
Prince George's County PS	81	/ 90	90.0%	A	33	/ 120	27.5%	D
Poudre SD	17	/ 90	18.9%	C+	32	/ 80	40.0%	C
San Francisco USD	43	/ 270	15.9%	C	121	/ 270	44.8%	B-
St. Paul PS	29	/ 270	10.7%	D	90	/ 270	33.3%	C-

* New York City Department of Education was not given a grade for achievement gap improvement because there were so few data points available for this metric due to test changes year to year. See New York City Department of Education chapter for details.

In each district's chapter the grade given for achievement gap improvement is relative to the other school districts in the *Weighted Student Formula Yearbook* other than New York City Department of Education. Therefore, any given district's ranking and grade is out of 14 rather than 15 school districts.

Achievement Gap Closures

Achievement gap closure grades were given for each of the following three achievement gap *measures* (discussed in Section 2 under "Achievement Gaps"):

- Internal district achievement gaps;
- Internal district versus internal state achievement gaps, and
- External district achievement gaps.

For each of these three achievement gap *measures*, a district was given one point for each of three achievement gaps that were considered to be closing. The three achievement gaps calculated are (discussed in Section 2 under "Achievement Gaps"):

- African-American vs. White gap: This compares the performance of African-American students with White Students;

- Hispanic vs. White gap: This compares the performance of Hispanic students with White students, and
- Low-income (socio-economically disadvantaged) vs. non-low-income gap: This compares the performance of low-income students with non-low-income students.

Each achievement gap was calculated for each grade level (elementary, middle and high school) and test subject (reading, mathematics and science). Therefore, a district could obtain a total of 27 points for each of the three achievement gap *measures* if all data were available. The total points earned for each achievement gap was divided by the total available points to find the percentage of points obtained out of total points. For each achievement gap measure, the calculated percentages were divided into 10 percentiles.

Table 20 below shows the 10 percentiles and range of percentages per percentile used to assign letter grades for internal district, internal district versus internal state, and external achievement gap closures.

Table 20: Grade Percentiles: Internal District, Internal District vs. Internal State, and External Achievement Gap Closures

Internal Gap Closures				Internal District vs. Internal State Closure				External Gap Closures			
Range		Percentile	Grade	Range		Percentile	Grade	Range		Percentile	Grade
Low	High			Low	High			Low	High		
0.0%	11.0%	10	F	0.0%	3.7%	10	F	0.0%	22.0%	10	F
12.0%	13.0%	20	D	3.8%	4.2%	20	D	23.0%	29.6%	20	D
14.0%	19.0%	30	C-	4.2%	6.7%	30	C-	30.0%	41.0%	30	C-
20.0%	21.0%	40	C	6.7%	7.4%	40	C	42.0%	44.0%	40	C
22.0%	35.0%	50	C+	7.5%	17.4%	50	C+	45.0%	50.7%	50	C+
36.0%	63.0%	60	B-	17.4%	22.2%	60	B-	51.0%	59.2%	60	B-
64.0%	70.0%	70	B	22.2%	25.0%	70	B	59.0%	59.0%	70	B
80.0%	83.0%	80	B+	26.0%	48.1%	80	B+	60.0%	62.9%	80	B+
84.0%	88.0%	90	A-	48.1%	56.3%	90	A-	63.0%	78.0%	90	A-
89.0%	100.0%	100	A	56.3%	100.0%	100	A	79.0%	100.0%	100	A

Table 21, below, shows each school district's total points earned, total possible points, percentage of points earned out of total possible, and letter grade for each measure of achievement gap closures.

In each district's chapter the grade given for achievement gap closure measures is relative to the other school districts in the *Weighted Student Formula Yearbook* other than New York City Department of Education. Therefore, any given district's ranking and grade are out of 14 rather than 15 school districts.

Table 21: Achievement Gap Closure Grades

	Internal District Gap Closures				Internal District vs. State Gap Closures				External District Gap Closures			
District	Pts.	Pos.	Pct.	Grade	Pts.	Pos.	Pct.	Grade	Pts.	Pos.	Pct.	Grade
Baltimore City Public SS	2	18	11.1%	F	1	18	5.6%	C-	6	18	33.3%	C-
Boston PS	4	27	14.8%	C-	2	27	7.4%	C	6	27	22.2%	F
Cincinnati City PS	15	18	83.3%	B+	6	18	33.3%	B+	11	18	61.1%	B+
Denver PS	1	27	3.7%	F	0	19	0.0%	F	12	27	44.4%	C
Hartford PS	15	16	93.8%	A	10	16	62.5%	A	12	21	57.1%	B-
Houston ISD	22	27	81.5%	B+	13	27	48.1%	B+	24	27	88.9%	A
Milwaukee PS	7	27	25.9%	C+	1	27	3.7%	F	16	27	59.3%	B-
Minneapolis PS	19	27	70.4%	B	6	27	22.2%	B-	16	27	59.3%	B-
New York City Dept. of Ed.	2	2	-	N/A*	0	2	-	N/A*	2	2	-	N/A*
Newark PS	5	24	20.8%	C	3	24	12.5%	C+	11	27	40.7%	C-
Oakland USD	14	16	87.5%	A-	9	16	56.3%	A-	2	16	12.5%	F
Prince George's County PS	2	15	13.3%	D	1	15	6.7%	C-	17	27	63.0%	B+
Poudre SD	5	8	62.5%	B-	2	8	25.0%	B	7	9	77.8%	A-
San Francisco USD	12	27	44.4%	B-	6	27	22.2%	B-	11	27	40.7%	C-
St. Paul PS	5	27	18.5%	C-	1	24	4.2%	D	8	27	29.6%	D

* New York City Department of Education was not given a grade for achievement closure measures because there were so few data points available for this metric due to test changes year to year. See New York City Department of Education chapter for details.

Graduation Rates

Graduation rates were graded similarly to the other performance metric grades mentioned above. Each school district had a total of four categories that could have received a graduation rate ranking: the overall district average graduation rate, low-income, African-American, and Hispanic student graduation rates. Therefore, each school district could gain a total of 40 points for graduation rate grades (10 points for each student group that was among the top 10 percent of districts in the state). The percentages of points gained out of total available were separated into five percentiles. If a district is among the top 20 percent of graduation rates relative to other districts in the *Weighted Student Formula Yearbook*, the district received a letter grade of an "A". If a given district fell in the bottom 20 percent of graduation rates relative to other district in the *Weighted Student Formula Yearbook*, the district received a letter grade of an "F".

Table 22 shows the 10 percentiles and range of percentages per percentile used to assign letter grades for graduation rates.

Table 23 shows each school district's total points earned, total possible points, percentage of points earned out of total possible, and letter grade for 2011 graduation rates.

Table 22: Grade Percentiles: 2011 Four-Year Cohort Graduation Rates

Range		Percentile	Grade
Low	High		
0.0%	20.0%	20	F
21.0%	31.3%	40	D
32.0%	42.5%	60	C
43.0%	51.3%	80	B
52.0%	100.0%	100	A

Table 23: 2011 Four-Year Cohort Graduation Rate Grades

District	Pts.		Pos.	Pct.	Grade
Baltimore City Public SS	7	/	40	17.5%	F
Boston PS	15	/	40	37.5%	C
Cincinnati City PS	18	/	40	45.0%	B
Denver PS	17	/	40	42.5%	C
Hartford PS	23	/	40	57.5%	A
Houston ISD	18	/	40	45.0%	B
Milwaukee PS	17	/	40	42.5%	C
Minneapolis PS	2	/	40	5.0%	F
New York City Dept. of Ed.	16	/	40	40.0%	C
Newark PS	9	/	40	22.5%	D
Oakland USD	0	/	40	0.0%	F
Prince George's County PS	10	/	40	25.0%	D
Poudre SD	30	/	40	75.0%	A
San Francisco USD	10	/	40	25.0%	D
St. Paul PS	24	/	40	60.0%	A

School Empowerment Benchmarks

Grades given for school empowerment benchmarks reached are based on the number of benchmarks a given district reached out of 10 possible benchmarks. These benchmarks are determined to be best practices within existing weighted student formula programs, and by recommendation of other studies on student-based budgeting. Letter grades were assigned similarly to how letter grades are assigned in the school system. A district reaching all 10 benchmarks would have 100 percent of benchmarks reached and would be given an "A+" letter grade. A district reaching 6 out of 10 benchmarks would have 60 percent of benchmarks reached and would be given a "D".

Table 24, below, shows each district's number of benchmarks reached out of 10 and corresponding letter grade.

Table 24: School Empowerment Benchmarks Grade

District	State	Total Benchmarks Based on WSF Yearbook	Grade
Baltimore City Public SD	MD	9 out of 10	A
Boston PS	MA	9 out of 10	A
Cincinnati City PS	OH	7 out of 10	C
Denver PS	CO	9 out of 10	A
Hartford PS	CT	9 out of 10	A
Houston ISD	TX	9 out of 10	A
Milwaukee PS	WI	7 out of 10	C
Minneapolis PS	MN	9 out of 10	A
New York City Dept. of Ed.	NY	10 out of 10	A+
Newark PS	NJ	9 out of 10	A
Oakland USD	CA	7 out of 10	C
Prince George's County PS	MD	6 out of 10	D
Poudre SD	CO	6 out of 10	D
San Francisco USD	CA	7 out of 10	C
St. Paul PS	MN	8 out of 10	B

Principal Autonomy

Principal autonomy was determined by the percentage of each school district's 2012–2013 general fund operating budget that was dispersed directly to schools. The larger share of the budget going directly to schools, the greater autonomy school principals enjoy. Letter grades were determined by assigning a "C" letter grade to the average percentage of budget autonomy (40 percent of the general fund operating budget is allocated directly to schools). Districts falling in the 30–39 percent range received a "D", and less than 30 percent budget autonomy received an "F". School districts with 41–49 percent budget autonomy received a "B" and those with higher than 49 percent budget autonomy received an "A".

Table 25, below, shows each district's percent of principal budget autonomy and corresponding letter grade.

Table 25: Principal Autonomy Grades

District	State	Funds Given Directly to Schools ($M)		GF Operating Budget ($M)	Percent of Budget Autonomy	Grade
Baltimore City Public SS	MD	$377.50	/	$1,273.31	29.6%	D
Boston PS	MA	$420.66	/	$995.61	42.3%	B
Cincinnati City PS	OH	$211.27	/	$467.50	45.2%	B
Denver PS	CO	$364.72	/	$823.93	44.3%	B
Hartford PS	CT	$167.02	/	$400.11	41.7%	B
Houston ISD	TX	$769.72	/	$1,793.67	42.9%	B
Milwaukee PS	WI	$334.77	/	$1,143.29	29.3%	F
Minneapolis PS	MN	$300.75	/	$537.58	55.9%	A
New York City Dept. of Ed.	NY	$5,000.00	/	$19,700.00	25.4%	F
Newark PS	NJ	$353.53	/	$924.13	38.3%	D
Oakland USD	CA	$197.20	/	$379.70	51.9%	A
Prince George's County PS	MD	$414.30	/	$1,664.40	24.9%	F
Poudre SD	CO	$94.31	/	$234.15	40.3%	C
San Francisco USD	CA	$254.89	/	$586.42	43.5%	B
St. Paul PS	MN	$237.10	/	$490.60	48.3%	B

Overall Letter Grade

Overall letter grades were assigned to each school district based on the 10 letter grades given for performance metrics, and letter grades given for school empowerment benchmarks and principal autonomy (12 letter grades total). Table 26 shows the number of points given for each letter grade received.

Points assigned to "School Empowerment Benchmarks" and "Principal Autonomy" grades were based on a slightly different scale because these grades were not given "+" and "-" grades. In this case, the district(s) with the most

Table 26: Points Given for Each Letter Grade

Letter Grade	Points
A	10
A-	9
B+	8
B	7
B-	6
C+	5
C	4
C-	3
D	2
F	1

school empowerment benchmarks (10 out of 10 reached), and the district with the highest level of principal autonomy were given 10 points. All other districts receiving an "A" for these categories were given eight points, those receiving a "B" were given six points, those receiving a "C" were given four points, and so on.

Points per letter grade were then added to find the total points each district received—a given district could receive up to 120 points total. Note that New York City Department of Education was left out of the total letter grade calculation because the district was missing nearly all grades that were dependent on measuring proficiency rates over time (due to changes in state tests year to year). Therefore, overall letter grades and district rankings are out of 14 rather than 15.

The district's point totals were divided into 10 percentiles and overall grades were assigned according to which percentile a district's total points fell—district's points that were among the top 10 percent of total points were given an "A", top 20 percent an "A-", top 30 percent a "B+", and so on. The district with the highest total number of points was given an "A+".

Table 27 below shows the 10 percentiles and range of percentages per percentile used to assign letter grades for overall district grades.

Table 27: Grade Percentiles: Overall District Grades

Point Range		Percentile	Grade
Low	High		
0	36	10	F
37	44	20	D
45	50	30	C-
51	52	40	C
53	53	50	C+
54	59.5	60	B-
60	64	70	B
65	69	80	B+
70	77	90	A-
78	100	100	A

Table 28 shows each school district's total points, rank (out of 14), and overall letter grade.

Table 28: Overall District Letter Grades

District	Total Points	Rank (Out of 14)	Overall Letter Grade
Baltimore City Public SS	36	14	F
Boston PS	58	8	B-
Cincinnati City PS	77	3	A-
Denver PS	50	11	C
Hartford PS	81	2	A
Houston ISD	95	1	A+
Milwaukee PS	44	13	D
Minneapolis PS	64	6	B
New York City Dept. of Ed.	N/A	N/A	N/A
Newark PS	49	12	C-
Oakland USD	73	4	A-
Prince George's County PS	52	10	C
Poudre SD	69	5	B+
San Francisco USD	63	7	B
St. Paul PS	53	9	C+

Appendix A: Proficiency Rate Tables

Tables A1–A3 give average decile rank and count of best decile ranks (1–3) across school levels (elementary, middle and high school) for reading, mathematics and science proficiency rates among each student group (low-income, African-American and Hispanic).

Table A1: Low Income Students

District	State	2011					Average change: 2008–2011				
		Avg. Decile Rank			Count of Best Ranks (1-3)		Avg. Decile Rank			Count of Best Ranks (1-3)	
		Read	Math	Sci.	Count / Avail.	Percent	Read	Math	Sci.	Count / Avail.	Percent
Eligible district average		8.5	7.8	8.9	0.2 / 8	2%	5.7	5.3	6.1	1 / 8	13%
Baltimore City Public SS	MD	10.0	10.0	10.0	0 / 9	0%	9.3	8.3	8.3	0 / 9	0%
Boston PS	MA	9.7	8.3	10.0	0 / 9	0%	7.3	6.3	6.7	0 / 9	0%
Cincinnati City PS	OH	8.3	9.0	9.7	0 / 9	0%	**2.7**	3.3	5.7	5 / 9	56%
Denver PS	CO	10.0	8.3	9.3	0 / 9	0%	5.0	4.7	5.7	0 / 9	0%
Hartford PS	CT	9.7	9.7	10.0	0 / 7	0%	4.3	**3.0**	5.0	3 / 7	43%
Houston ISD	TX	6.7	5.0	5.0	0 / 9	0%	5.3	4.3	5.3	1 / 9	11%
Milwaukee PS	WI	10.0	10.0	10.0	0 / 9	0%	5.7	4.3	5.3	1 / 9	11%
Minneapolis PS	MN	10.0	9.3	9.7	0 / 9	0%	5.3	7.0	6.7	0 / 9	0%
New York City Dept. of Ed.	NY	6.7	6.0	9.5	0 / 8	0%	4.0	—	—	0 / 1	0%
Newark PS	NJ	9.0	8.7	9.0	0 / 7	0%	5.7	3.7	6.7	1 / 9	11%
Oakland USD	CA	7.3	5.7	—	0 / 6	0%	4.7	4.3	—	3 / 6	50%
Poudre SD	CO	6.0	4.3	—	1 / 6	17%	8.0	5.3	—	0 / 4	0%
Prince George's County PS	MD	9.0	10.0	9.3	0 / 9	0%	5.0	7.0	5.0	1 / 9	11%
San Francisco USD	CA	5.3	4.0	4.0	2 / 9	22%	7.0	7.7	6.7	0 / 9	0%
St. Paul PS	MN	10.0	8.7	9.7	0 / 9	0%	6.3	5.3	6.7	0 / 9	0%

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table A2: African-American Students

District	State	2011					Average change: 2008–2011				
		Avg. Decile Rank			Count of Best Ranks (1-3)		Avg. Decile Rank			Count of Best Ranks (1-3)	
		Read	Math	Sci.	Count / Avail.	Percent	Read	Math	Sci.	Count / Avail.	Percent
Eligible district average		8.0	7.7	8.0	0.1 / 9	1%	5.7	5.2	6.2	1 / 7	13%
Baltimore City Public SS	MD	10.0	9.7	9.7	0 / 9	0%	8.7	7.0	6.3	0 / 9	0%
Boston PS	MA	9.3	8.0	9.7	0 / 9	0%	6.3	6.0	5.3	0 / 9	0%
Cincinnati City PS	OH	7.0	6.3	7.3	0 / 9	0%	3.0	3.7	5.7	4 / 9	44%
Denver PS	CO	†	†	†	— / —	—	†	†	9.0	0 / 1	0%
Hartford PS	CT	7.0	7.7	8.0	0 / 7	0%	3.3	2.3	6.0	5 / 7	71%
Houston ISD	TX	5.3	5.0	4.0	1 / 9	11%	5.3	4.3	5.3	1 / 9	11%
Milwaukee PS	WI	9.7	10.0	10.0	0 / 9	0%	6.0	5.7	6.0	0 / 9	0%
Minneapolis PS	MN	8.0	7.7	7.0	0 / 9	0%	6.3	5.0	6.3	0 / 9	0%
New York City Dept. of Ed.	NY	6.7	5.7	8.0	0 / 8	0%	4.0	—	—	0 / 1	0%
Newark PS	NJ	9.3	8.7	9.3	0 / 9	0%	6.0	5.0	7.7	1 / 9	11%
Oakland USD	CA	8.5	6.7		0 / 7	0%	6.0	4.3		1 / 5	20%
Poudre SD	CO	—	—	—	— / —	—	—	—	—	— / —	—
Prince George's County PS	MD	6.0	8.3	7.3	0 / 9	0%	5.3	7.0	4.0	2 / 9	22%
San Francisco USD	CA	9.0	9.3	8.7	0 / 9	0%	6.3	6.7	6.3	0 / 9	0%
St. Paul PS	MN	7.7	7.3	7.0	0 / 9	0%	7.0	6.0	6.7	0 / 9	0%

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table A3: Hispanic Students

District	State	2011					Average change: 2008–2011				
		Avg. Decile Rank			Count of Best Ranks (1-3)		Avg. Decile Rank			Count of Best Ranks (1-3)	
		Read	Math	Sci.	Count / Avail.	Percent	Read	Math	Sci.	Count / Avail.	Percent
Eligible district average		7.7	7.1	8.0	0 / 8	3%	5.2	5.0	5.7	1 / 7	15%
Baltimore City Public SS	MD	†	†	†	— / —	—	†	†	†	— / —	—
Boston PS	MA	7.0	6.0	9.3	0 / 9	0%	5.7	6.0	5.3	1 / 9	11%
Cincinnati City PS	OH	—	—	—	— / —	—	—	—	—	— / —	—
Denver PS	CO	9.3	7.3	8.3	0 / 9	0%	4.0	4.0	5.0	2 / 9	22%
Hartford PS	CT	9.3	8.3	9.0	0 / 7	0%	4.0	2.7	8.0	4 / 7	57%
Houston ISD	TX	6.0	4.3	4.3	0 / 9	0%	4.7	4.0	5.3	1 / 9	11%
Milwaukee PS	WI	9.3	9.0	9.7	0 / 9	0%	6.3	5.0	5.3	0 / 9	0%
Minneapolis PS	MN	8.0	7.3	7.3	0 / 9	0%	6.7	8.3	5.0	0 / 9	0%
New York City Dept. of Ed.	NY	8.3	7.7	8.5	0 / 8	0%	4.0	—	—	0 / 1	0%
Newark PS	NJ	8.3	7.7	9.0	0 / 9	0%	5.3	5.0	6.3	2 / 9	22%
Oakland USD	CA	8.5	5.7		1 / 7	14%	4.5	3.7		2 / 5	40%
Poudre SD	CO	4.0	4.7		1 / 7	14%	6.0	6.0		1 / 5	20%
Prince George's County PS	MD	8.5	9.5	9.0	0 / 6	0%	3.0	4.0	†	1 / 2	50%
San Francisco USD	CA	8.3	9.3	8.0	0 / 9	0%	6.3	6.7	6.0	0 / 9	0%
St. Paul PS	MN	5.7	5.0	5.3	1 / 9	11%	7.3	5.0	4.7	0 / 9	0%

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Appendix B: Achievement Gap Calculations and Tables

Equation B1: Achievement Gap Improvement Calculation

$$\frac{1}{n}\sum_{i=1}^{n} x_i = \frac{1}{n\left[\frac{P_{s,t} - P_{s,t-1}}{P_{s,t-1}}\right]}$$

Where $P_{s,t}$ = Proficiency in test subject s for a given student group at time t

Equation B2: Internal District vs. Internal State Achievement Gap Calculation

$$(D_{s,t} - A_{s,t}) - (DS_{s,t} - AS_{s,t}) = ID\ vs.\ IS\ Achievement\ Gap$$

Where;

$D_{s,t}$ = District disadvantaged student group proficiency rate in subject s at time t

$A_{s,t}$ = District advantaged student group proficiency rate in subject s at time t

$DS_{s,t}$ = State disadvantaged student group proficiency rate in subject s at time t

$AS_{s,t}$ = State advantaged student group proficiency rate in subject s at time t

Equation B3:

$$D_{s,t} - AS_{s,t} = External\ Achievement\ Gap$$

Where;

$D_{s,t}$ = District disadvantaged student group proficiency rate in subject s at time t

$AS_{s,t}$ = State advantaged student group proficiency rate in subject s at time t

Table B1: 2011 Achievement Gap Rankings: African-American vs. White Student Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	8.2	8.2	7.3	8.8	8.8	8.0	8.0	8.1	8.0
Baltimore City Public SS	6	6	3	3	4	4	3	3	6
Boston PS	7	9	4	9	9	3	9	9	9
Cincinnati City PS	7	9	9	9	10	10	6	5	7
Denver PS	†	†	†	†	†	†	†	†	†
Hartford PS	7	5	-	9	7	-	9	8	9
Houston ISD	5	6	4	8	7	6	8	8	7
Milwaukee PS	8	8	6	8	10	7	5	9	8
Minneapolis PS	10	10	10	10	10	10	10	9	9
New York City Dept. of Ed.	9	8	7	10	9	10	8	8	-
Newark PS	10	10	10	10	10	10	9	9	6
Oakland USD	10	†	-	10	10	-	10	10	-
Prince George's County PS	†	†	†	†	†	†	†	†	†
Poudre SD	†	†	-	†	†	-	†	†	-
San Francisco USD	10	10	10	10	10	10	10	10	10
St. Paul PS	9	9	10	10	9	10	9	9	9

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations. – Data not available.
†Data were suppressed due to unreliability. NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table B2: 2011 Achievement Gap Rankings: Hispanic vs. White Student Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	8.7	8.5	8.0	8.7	8.8	8.2	8.8	8.3	9.0
Baltimore City Public SS	†	†	†	†	†	†	†	†	†
Boston PS	7	8	7	9	8	4	9	7	10
Cincinnati City PS	†	†	†	†	†	†	†	†	†
Denver PS	10	10	10	9	10	10	10	10	10
Hartford PS	10	9	-	10	10	-	9	9	10
Houston ISD	5	7	5	7	8	6	8	8	8
Milwaukee PS	8	7	5	5	7	5	5	8	8
Minneapolis PS	10	10	10	9	10	10	10	8	10
New York City Dept. of Ed.	9	9	9	10	9	9	9	8	-
Newark PS	10	8	9	9	9	10	9	10	7
Oakland USD	10	†	-	10	10	-	9	10	-
Prince George's County PS	-	-	-	-	-	-	-	-	-
Poudre SD	9	†	-	9	8	-	8	5	-
San Francisco USD	10	10	9	10	10	10	10	10	10
St. Paul PS	6	7	8	7	7	10	9	6	8

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table B3: 2011 Achievement Gap Rankings: Low-Income vs. Non-Low Income Student Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	7.3	7.8	7.7	6.5	7.4	6.8	5.1	6.0	6.3
Baltimore City Public SS	9	10	8	4	7	8	3	3	1
Boston PS	5	7	5	6	8	3	4	6	7
Cincinnati City PS	10	10	10	10	10	10	5	5	8
Denver PS	10	10	10	9	10	10	8	9	9
Hartford PS	10	10	-	10	10	-	4	7	9
Houston ISD	5	7	6	5	7	5	5	7	6
Milwaukee PS	10	10	10	10	10	9	4	7	7
Minneapolis PS	10	10	10	10	10	10	10	10	10
New York City Dept. of Ed.	7	8	8	6	7	8	-	-	-
Newark PS	2	2	7	1	1	1	1	2	2
Oakland USD	5	6	-	3	3	-	2	3	-
Prince George's County PS	2	2	2	2	3	3	1	1	2
Poudre SD	8	†	-	9	9	-	9	†	-
San Francisco USD	6	7	6	3	6	5	6	8	4
St. Paul PS	10	10	10	10	10	10	9	10	10

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table B4: Average Change in Achievement Gap 2008–2011 Rankings: African-American vs. White Student

Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	5.2	5.6	6.0	5.1	4.5	5.2	5.4	5.7	6.5
Baltimore City Public SS	9	10	7	9	3	2	3	6	3
Boston PS	7	8	4	5	3	5	6	5	6
Cincinnati City PS	3	4	6	4	3	8	8	6	7
Denver PS	†	†	9	†	†	†	†	†	†
Hartford PS	3	2	-	2	2	-	†	3	7
Houston ISD	3	4	5	3	5	3	4	5	5
Milwaukee PS	6	6	3	5	7	5	5	7	7
Minneapolis PS	6	3	4	8	5	7	4	4	6
New York City Dept. of Ed.	‡	‡	‡	‡	‡	‡	‡	5	‡
Newark PS	7	8	10	8	8	8	3	7	8
Oakland USD	2	†	-	1	2	-	4	4	-
Prince George's County PS	†	†	†	†	†	†	6	9	8
Poudre SD	-	-	-	-	-	-	-	-	-
San Francisco USD	4	4	5	4	4	3	8	6	7
St. Paul PS	7	7	7	7	8	6	8	7	8

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

‡ Data were suppressed due to change in state test from year to year.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table B5: Average Change in Achievement Gap 2008–2011: Hispanic vs. White Student Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	5.6	6.1	5.3	5.3	4.8	4.8	4.9	4.9	6.2
Baltimore City Public SS	†	†	†	†	†	†	†	†	†
Boston PS	4	6	5	5	3	4	7	4	4
Cincinnati City PS	†	†	†	†	†	†	†	†	†
Denver PS	6	7	5	6	6	8	7	7	7
Hartford PS	5	3	-	1	1	-	†	2	10
Houston ISD	3	4	6	2	4	2	3	4	3
Milwaukee PS	6	7	4	6	7	4	4	7	6
Minneapolis PS	9	6	4	10	5	7	7	6	3
New York City Dept. of Ed.	‡	‡	‡	‡	‡	‡	‡	5	‡
Newark PS	6	8	7	8	7	6	3	6	8
Oakland USD	2	†	-	1	1	-	3	2	-
Prince George's County PS	-	-	-	-	-	-	-	-	-
Poudre SD	9	†	-	6	7	-	4	†	-
San Francisco USD	5	6	5	6	5	3	6	4	8
St. Paul PS	7	8	6	7	7	4	5	7	7

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.

– Data not available. †Data were suppressed due to unreliability.

‡ Data were suppressed due to change in state test from year to year.

NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Table B6: Average Change in Achievement Gap 2008–2011: Low-Income vs. Non-Low-Income Student

Proficiency

District	Elementary School			Middle School			High School		
	Math	Read	Science	Math	Read	Science	Math	Read	Science
Avail. Dist. Avg.	6.8	6.2	7.4	6.4	6.4	6.6	7.2	6.9	6.3
Baltimore City Public SS	10	10	10	10	10	10	9	10	8
Boston PS	9	9	7	8	8	7	8	9	8
Cincinnati City PS	3	2	7	5	4	8	5	5	6
Denver PS	8	8	9	9	8	9	8	8	8
Hartford PS	†	†	-	1	2	-	-	1	2
Houston ISD	5	5	6	4	5	4	6	8	7
Milwaukee PS	6	6	6	6	6	6	5	6	6
Minneapolis PS	10	6	6	10	5	5	8	7	4
New York City Dept. of Ed.	‡	‡	‡	‡	‡	‡	‡	‡	‡
Newark PS	5	4	8	4	4	3	-	-	-
Oakland USD	6	5	-	5	5	-	9	8	-
Prince George's County PS	8	5	8	10	8	9	7	6	5
Poudre SD	4	†	-	6	8	-	6	†	-
San Francisco USD	8	8	7	6	8	6	8	8	8
St. Paul PS	7	6	7	5	8	6	7	7	7

Source: 2012 Broad Prize for Urban Education Summary Tables. Reason Foundation calculations.
– Data not available. †Data were suppressed due to unreliability.
‡ Data were suppressed due to change in state test from year to year.
NOTE: Bold rankings in orange indicate district ranked in the top 30 percent (1st – 3rd decile) of all districts in its state.

Endnotes

[1] http://www.broadprize.org/asset/1214-2012summaryprocedures.pdf

[2] http://www.broadprize.org/resources/75_districts.html#collection

[3] California Department of Education, Adequate Yearly Progress Data Files, http://www.cde.ca.gov/ta/ac/ay/

Ohio Department of Education, Disaggregated School Data, http://ilrc.ode.state.oh.us/Downloads.asp

Data Interaction, Connecticut Academic Performance Test, http://solutions1.emetric.net/CAPTPublic/Index.aspx

Colorado Department of Education, Schoolview Data Lab, http://www.schoolview.org/performance.asp

Minnesota Department of Education, Data Center, http://w20.education.state.mn.us/MDEAnalytics/Data.jsp

[4] http://www.broadprize.org/asset/1214-2012summaryprocedures.pdf

[5] Publicly available Broad Prize for Urban Education summary data were used for the following districts: Baltimore City Public School District, Boston Public School District, Denver Public School District, Houston Independent School District, New York Department of Education, Newark Public School District, Prince George's County Public School District, St. Paul Public School District, San Francisco Unified School District and Milwaukee Public School District. The remaining districts were calculated using Broad methodology by analysts at Reason Foundation: Cincinnati City School District, Minneapolis Public School District, Poudre School District, Hartford Public School District and Oakland Unified School District.

[6] http://www.broadprize.org/asset/1214-2012summaryprocedures.pdf

[7] http://www.broadprize.org/resources/75_districts.html#using

[8] http://education.ohio.gov/Topics/Finance-and-Funding/Finance-Related-Data/District-Profile-Reports/FY2011-District-Profile-Report

[9] https://explore.data.gov/Education/School-graduation-rates/5vtz-kvrk

[10] Weighting regressions by district size will likely moderate the size of standardized residuals of large districts, which have a stronger influence on the slope of the regression line than smaller districts. Such moderating effects are more likely to occur in states where one district is much larger than others in the state.

[11] Ibid.