

DID ANY SCHOOLS “BEAT THE ODDS” ON THE 10TH-GRADE WASL IN SPRING 2006?

The 2006 Legislature directed the Washington State Institute for Public Policy (Institute) to conduct a “review and statistical analysis of Washington assessment of student learning [WASL] data.”¹ Previous reports have examined the association between individual-level student characteristics and met-standard rates.

This report attempts to identify schools whose students performed above and below expectations on the 10th-grade WASL in spring 2006 given their characteristics.

We sought to find schools that “beat the odds”—schools whose students did better on the WASL than expected given their demographic characteristics.² These schools’ practices and strategies could then be emulated by other schools with similar demographics. As we show, however, we found that few schools fit this description.

We used multivariate logistic regression to “predict” WASL met-standard rates, taking into account numerous student characteristics commonly found to influence performance: gender, race/ethnicity, language barriers, poverty status, enrollment in special education, and parents’ educational attainment. One set of results described student performance in reading and writing combined (n=66,137); another set analyzed performance in math only (n=65,108).

To address school-level WASL performance, we pooled the student-level results to describe how a school’s enrollment composition is associated with its overall met-standard rate.³

SUMMARY

This report concludes that very few schools “beat the odds” on the 10th-grade WASL in spring 2006, but several performed “below expectations.”

The analysis identifies the extent to which schools’ average met-standard rates differed from statistical expectations given the gender, racial/ethnic, socioeconomic, linguistic, and special-needs characteristics of their students. We analyzed math separately from reading and writing.

As we defined it, schools “beat the odds” when actual met-standard rates exceeded their predicted rates by at least 12 percentage points in reading and writing and 16 percentage points in math. Schools performed “below expectations” when actual met-standard rates fell below predicted rates by 12 or more percentage points in reading and writing and 16 percentage points in math.

- 8 out of 309 schools performed better than expected, and 24 schools performed worse than expected, on the reading and writing WASL.
- 13 out of 303 schools performed better than expected, and 24 schools performed worse than expected, on the math WASL.

We then compared a school’s *actual* met-standard rate, based on the number of students in the school who completed the relevant portions of the WASL, with its *predicted* met-standard rate.

We define schools as “beating the odds” when their actual met-standard rates exceeded their predicted rates by at least 12 percentage points in reading and writing, and 16 percentage points in math. Conversely, schools performed “below expectations” when actual met-standard rates fell below predicted rates by 12 and 16 percentage points in reading/writing and math, respectively.

The 12- and 16-percentage-point thresholds correspond to a difference of ± 1 standard deviation in met-standard rates for reading/writing and math. These calculations are based on schools that enrolled at least 25 students who completed the WASL.

¹ SSB 6618, Chapter 352, Laws of 2006.

² See, for example, Center for the Future of Arizona and Morrison Institute for Public Policy. (2006). *Why Some Schools With Latino Children Beat the Odds...And Others Don't*. <www.arizonafuture.org/latinoEd/index.html>.

³ The results of our regression analysis are available on request. We reviewed all “beat-the-odds” studies we could locate. Our analysis extends this literature by using logistic regression to control for statistically significant variables not included in other studies. In upcoming analyses, we will use hierarchical linear models (HLM) to estimate the combined association of student- and school-level characteristics with met-standard rates.

Exhibit 1 plots actual met-standard rates against predicted met-standard rates based on schools' enrollment composition. The analysis identifies the extent to which schools performed above or below statistical expectations given the gender, racial/ethnic, socioeconomic, linguistic, and special-needs characteristics of their students.

Exhibit 1A displays actual versus predicted performance on the reading and writing WASL. Exhibit 1B replicates the analysis for the math WASL. Each dot represents a different school. Blue dots represent schools with at least 25 but fewer than 100 students who completed the WASL, whereas red dots correspond to schools with 100 or more WASL completers.

How to interpret the charts. The diagonal lines serve as benchmarks. Points falling on the solid diagonal indicate that actual and predicted met-standard rates are equivalent—that demographic characteristics predicted met-standard rates perfectly.

Points falling within the dashed lines—within 12 and 16 percentage points of predicted met-standard rates for reading/writing and math, respectively—represent schools that performed roughly as expected given their enrollment composition. Points located above this region represent schools that “beat the odds” (i.e., performed better than expected); points falling below it denote schools that performed “below expectations” (worse than expected).

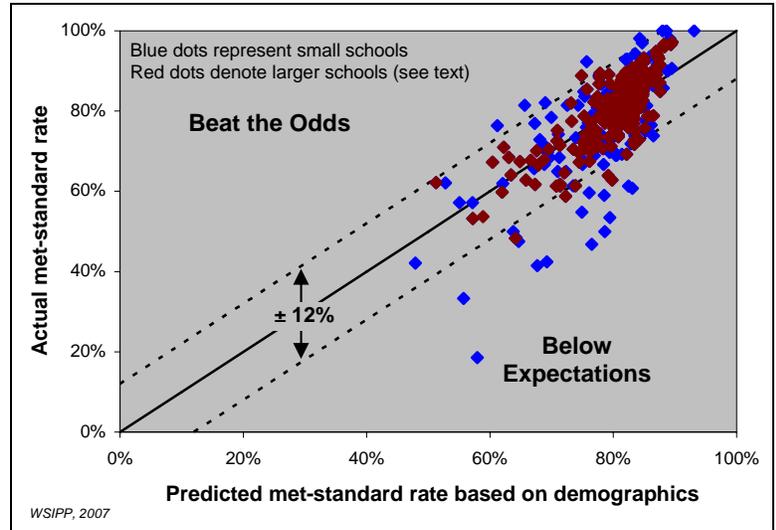
What the results mean. Actual and predicted met-standard rates are much higher for reading and writing than for math. At most schools, met-standard rates in reading and writing exceeded 60 percent, while school-level performance in math was much more variable. The main finding, however, is that very few schools “beat the odds”—performed substantially better on the WASL than might be expected—given the demographic characteristics of their students.

- By our definition, 8 out of 309 schools included in the analysis beat the odds in reading and writing.
- We identified 13 beat-the-odds schools for math out of 303 schools. Only 3 of these schools had a predicted met-standard rate below 50 percent.
- 24 schools performed below expectations in reading and writing.
- 24 schools performed below expectations in math.

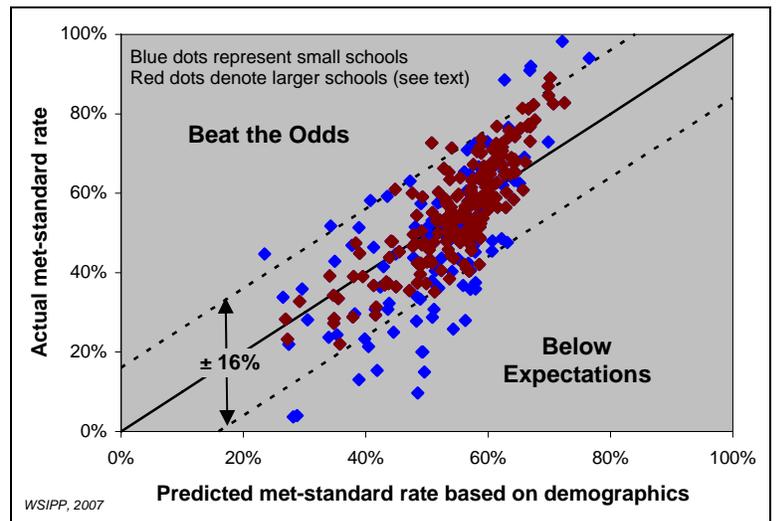
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Exhibit 1
Average and Predicted Met-Standard Rates

A. Reading and Writing



B. Math

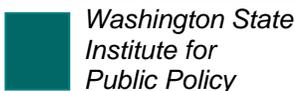


How school size influences the results. When computing average met-standard rates, the size of a school matters. Average rates in small schools are sensitive to the performance of individual students: a few high- or low-performing students can greatly influence aggregate performance. To demonstrate, 15 of 21 beat-the-odds schools, and 39 of 48 below-standards schools, enrolled fewer than 100 students who completed the WASL. This is a property of averages. As the number of WASL completers at a school increases, average predicted and actual met-standard rates tend to converge.

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