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## Fifth...or Forty-Ninth? Examining Educational Rankings in Arkansas

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## Summary Points

- Arkansas ranks 5th in Education according to Education Week's annual Quality Counts report released in January 2013.
- An examination of student performance on the National Assessment of Educational Progress (NAEP) indicates Arkansas students are performing less well than their peers in other states.
- Depending on the measure, Arkansas often ranks in the bottom 25% of states on NAEP performance.
- Taking Arkansas' and other states' poverty rates into consideration when examining school performance, Arkansas performs better than average among the 49 other states and Washington DC.

## Fifth...or Forty-Ninth? Examining Educational Rankings in Arkansas

*Media outlets, as well as many leaders across the state, have recently been trumpeting the Natural State's fifth-place ranking in the latest release of Education Week's Quality Counts, which assigns letter grades to every state on a menu of education measures, to suggest that Arkansas schools "rank fifth in the country." On the other hand, the state received a D on the Student Achievement category of Quality Counts and many Arkansans are accustomed to seeing Arkansas ranked at or near the bottom among all states on measures related to education and economic well-being. For example, on measures of college degree attainment, Arkansas regularly ranks 49<sup>th</sup> among the 50 states. So, which is it? Does the Natural State rank 5<sup>th</sup> or 49<sup>th</sup>? We believe that, while Arkansas performs admirably given the state's level of poverty and adult education levels, the quality of our public K-12 schools falls somewhere between these two extremes.*

### Introduction

For decades, Arkansas has faced a formidable demographic challenge in educating its next generation. The state has one of the highest poverty rates in the nation. In 2010-11, 60% of Arkansas students were eligible for free or reduced-price lunches (FRL), the fourth-highest rate in the nation. Further, low levels of educational attainment among adults increase the challenge faced by schools. Only 18.9% of adults in Arkansas have at least a bachelor's degree, compared to 28% nationally. This ranks Arkansas 49<sup>th</sup>, ahead of only West Virginia.

Our main question is this: given the demographic challenges Arkansas faces, how does the education Arkansas' students receive compare to that received by students in other states? We start off by considering the usefulness and proper interpretation of *Quality Counts*. Second, and perhaps more importantly, we examine scores from NAEP, otherwise known as the "Nation's

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Report Card", to consider the question of overall school quality. We break this analysis into three parts: 1) a snapshot of 2011 NAEP scores (most recent), 2) an examination of NAEP gains since 2003, and 3.) a comparison of Arkansas' actual NAEP scores with scores we would expect given our student demographics.

### Education Week's *Quality Counts*

Every year, *Education Week* releases the results for *Quality Counts*, which 'grades' schools on several measures relevant to K-12 education in each state. The measures examined are much broader than test scores and academic achievement. In fact, K-12 achievement counts for only one-sixth of *Quality Counts*' grading scheme. The other measures include such diverse issues as the availability of pre-school, the development of the teaching profession, school spending levels, standards and accountability, and coordination between the different stages of education and careers. These are all good things states should be pursuing, and *Quality Counts* does a great job of drawing attention to them.

In doing so, however, *Quality Counts* is not directly estimating how well states are teaching their students. *Quality Counts* is focused more on *policies* and *inputs* than on outcomes. Arkansas gets a high ranking because the state has done a good job of developing strong policies, especially in two categories: standards, assessments, and accountability (94.4% A, ranked 6<sup>th</sup>) and transitions and alignment (96.4% A, ranked 2<sup>nd</sup>). Strength in these areas should eventually

lead to gains in student learning, but for now, we should not confuse a good blueprint with a beautiful building.

However, this does not imply that we're fifth-best in the nation at teaching our students and preparing them for success -- the outcome with which many education leaders are ultimately concerned.

### NAEP: The Nation's Report Card, Arkansas' State Report Card

The National Assessment of Educational Progress (NAEP) is the primary measure available for comparing student achievement between states. While it has long been known as "the nation's report card", in the last decade it has also been used extensively to track student achievement in the 50 states. To estimate the quality of Arkansas' schools, we focus on NAEP results for Arkansas and others in the remainder of this brief. In every analysis presented here, we show Arkansas' NAEP results for three categories of students: **All** Arkansas students (overall), low-income students, and higher-

income students. We do this to account for the fact that Arkansas has a much higher rate of poverty than the national average. By examining higher- and low-income students separately in comparison to other states, we can partly account for Arkansas' socioeconomic disadvantage, and we can examine achievement gaps.

### 2011 Snapshot

NAEP scores are available for all states in literacy and math for grades 4 and 8. On these four measures, Arkansas ranks between 36<sup>th</sup> (4<sup>th</sup> grade math) and 43<sup>rd</sup> (8<sup>th</sup> grade literacy) nationally. Separating low-income and higher-income students provides a slightly more nuanced picture. With our more affluent (Not eligible for Free and Reduced Lunch) students, Arkansas ranks as high as 20<sup>th</sup> (4<sup>th</sup> grade math) but as low as 38<sup>th</sup> (8<sup>th</sup> grade math and literacy). Among low-income students (eligible for FRL), the rankings fall between 27<sup>th</sup> (8<sup>th</sup> grade math) and 40<sup>th</sup> (8<sup>th</sup> literacy). For both income groups as well as overall, Arkansas performs most poorly in 8<sup>th</sup> grade literacy. These results are summarized in Figures 1 and 2.

Figure 1. Grade 4 NAEP Average Scale Scores in Math and Reading by Student Income Level, 2011

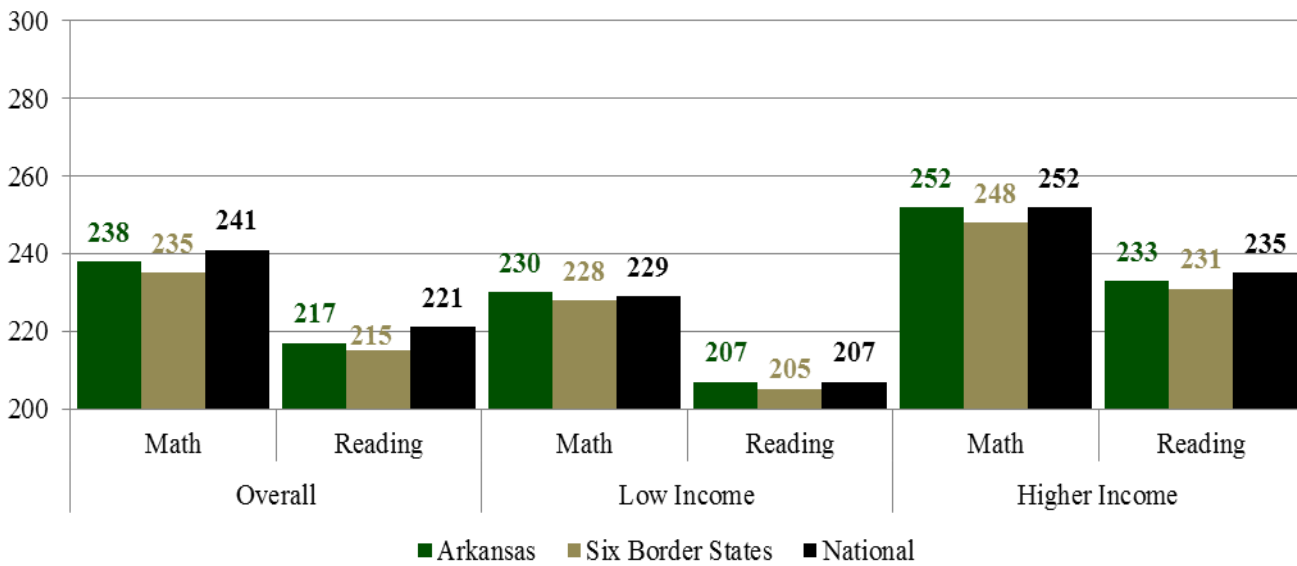
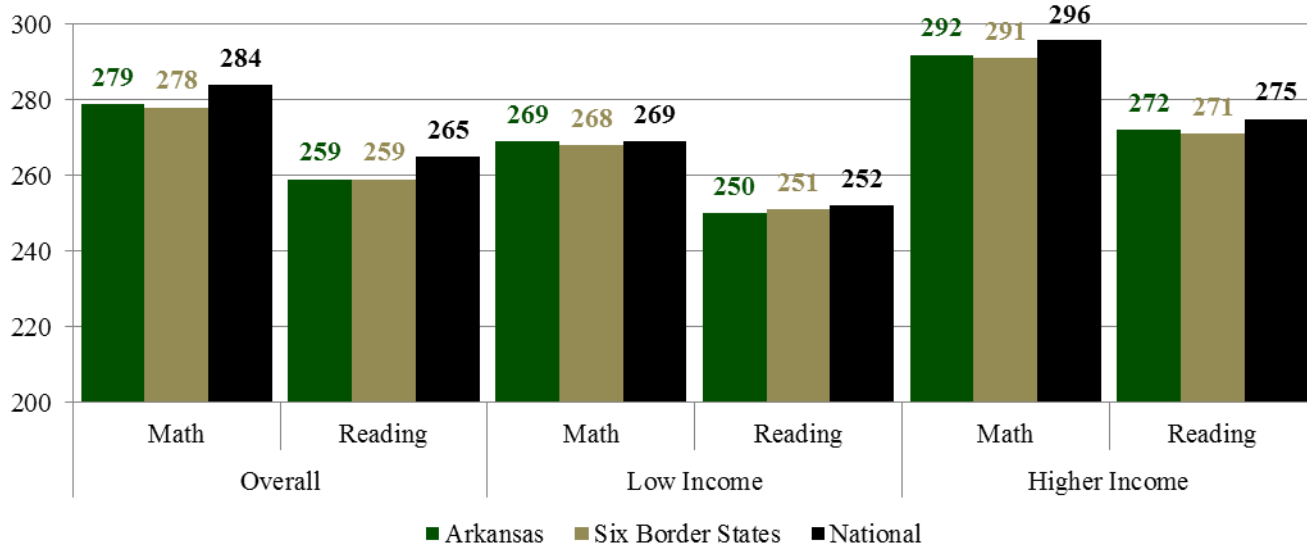


Figure 2. Grade 8 NAEP Average Scale Scores in Math and Reading by Student Income Level, 2011



A couple of patterns emerge when comparing Arkansas' performance to surrounding states as well as all 50 states. Arkansas consistently outperforms the six border states (LA, MO, MS, OK, TN, TX) in grade 4, on both math and literacy. Particularly noteworthy is the performance of our higher-income 4<sup>th</sup> graders. The pattern for our 8<sup>th</sup> graders is murkier: on average, our performance is indistinguishable from the six border states.<sup>1</sup> Comparing Arkansas students overall to the US, we consistently score lower than national averages in both subjects and tested grades. Yet examining low- and higher-income students separately, we either slightly underperform or equal the national average.

So, based on this first analysis that compares the different student groups in Arkansas to their peers across the nation, we find that our lower-income students perform at (gr. 8) or above (gr. 4) the national average in math and at (gr. 4) or just below (gr. 8) the national average in reading. Higher-income students in Arkansas perform at (gr. 4) or below (gr. 8) the national average in math and below the national average in reading in both grade levels. On balance, it

seems fair to say that this analysis suggests that Arkansas students perform right around the national average.

### NAEP Trends: 2003-11

Nationally, students have seen modest gains on the NAEP over the last decade. Figures 3 and 4 compare the gains of Arkansas and the six bordering states with these national gains. The gains seen in Arkansas generally outpace those seen nationally, while border states show no consistent advantage relative to the nation. Only in reading performance for low-income students has Arkansas shown less progress than its neighbors and the nation as a whole.

Thus, based on our second analytic strategy, we find that Arkansas students at both income groups outpace those of the rest of the nation in mathematics. In reading, however, Arkansas lower-income students have not experienced any gains in grade 8 and have made less progress than their peers nationally in grade 4. Higher-income students did perform as well or better than their peers nationally.

Figure 3. Grade 4 NAEP Score Gains (in terms of % proficient or better) in Math and Reading by Income Level, 2003 to 2011

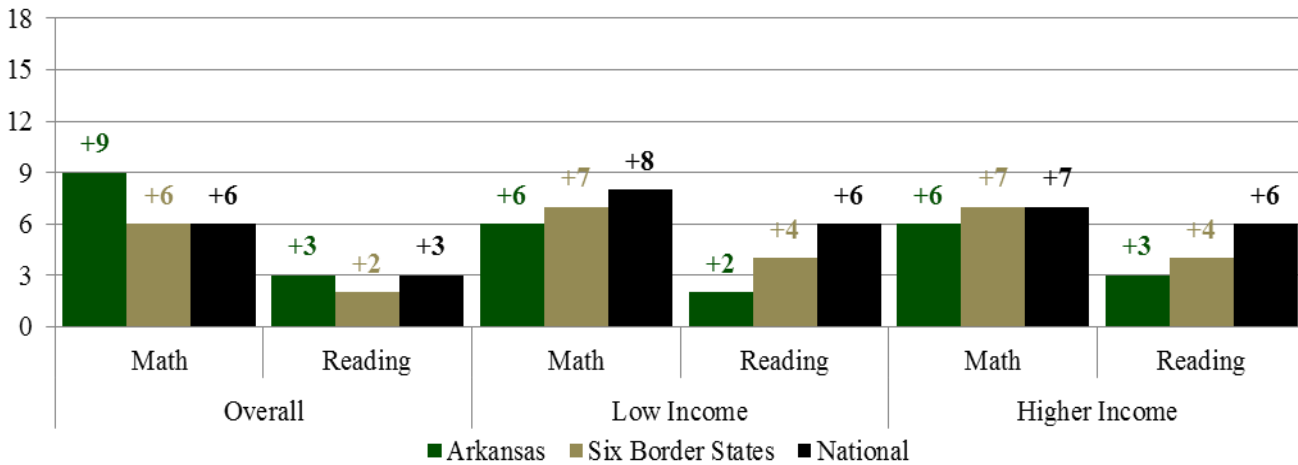
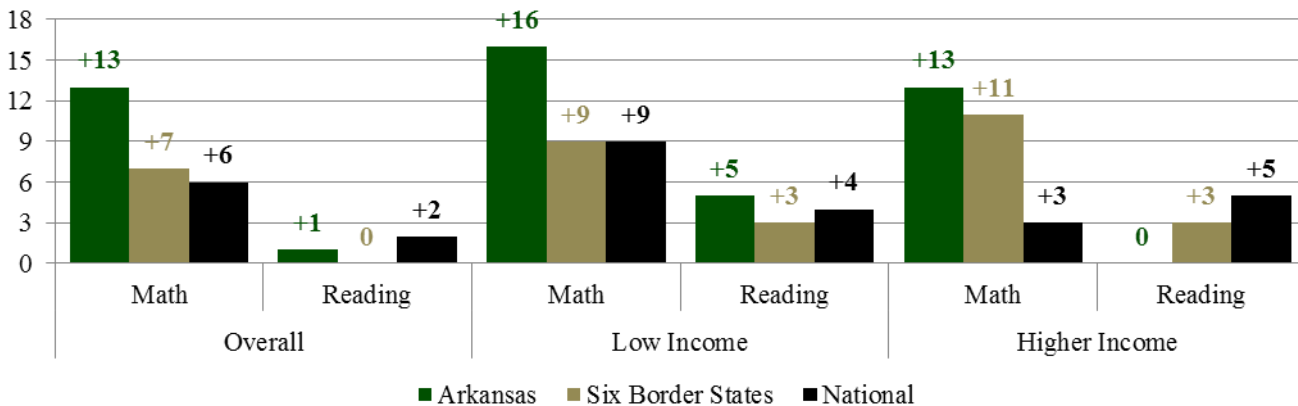


Figure 4. Grade 8 NAEP Score Gains (in terms of % proficient or better) in Math and Reading by Income Level, 2003 to 2011



<sup>1</sup>Arkansas outperformed surrounding states in 8<sup>th</sup> grade math but fall behind them in 8<sup>th</sup> grade literacy with low-income students. Overall, we fall slightly behind them. With our higher-income students, we tie them.

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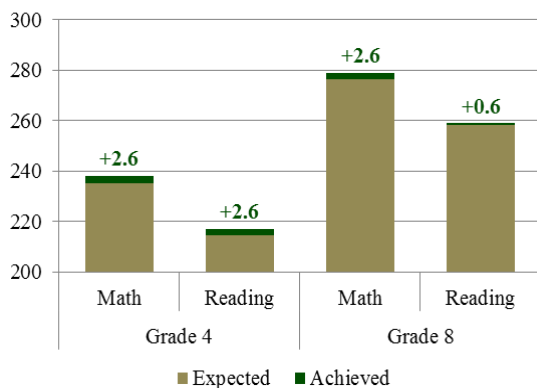
## Arkansas School Quality: Demographic Expectations vs. Actual Performance

Looking at the most recent 2011 NAEP performance in math and reading, as well as trends over the last decade, provides a framework for our preferred analysis: a comparison of Arkansas’ observed performance with how we should *expect* Arkansas to perform given its student demographics.

We model expectations using state-level demographic data from the National Center for Education Statistics Common Core of Data (CCD) for the 2010-11 school year. These data include poverty rates, racial and ethnic percentages, and rates of students in special programs such as students with disabilities and English language learners. Using ordinary least squares, we regress state demographics on NAEP scale scores for each measure (4<sup>th</sup> and 8<sup>th</sup> grade math and reading). Because our demographic model includes controls for poverty, we choose to focus only on overall achievement.<sup>2</sup> This model allows us to establish *expected* scores based on demographics, which can then be compared to states’ *actual* scores to consider how well states are over- or under-performing their expectations.

The results of this analysis are presented below. Figure 5 shows differences between Arkansas’ expected and actual NAEP achievement in 2011. The colored portions of the bars represent the state’s difference score. Green is used here to indicate that on all four measures, Arkansas performs better than expected. In both math and

Figure 5. Arkansas 2011 NAEP Scores, Achieved



<sup>2</sup>Arkansas outperformed surrounding states in 8<sup>th</sup> grade math but fall behind them in 8<sup>th</sup> grade literacy with low-income students. Overall, we fall slightly behind them. With our higher-income students, we tie them.

reading in the 4<sup>th</sup> grade, as well as 8<sup>th</sup> grade math, Arkansas beats its demographic expectation by 2.6 scaled score points. This implies a “better than average” performance by the state. In 8<sup>th</sup> grade reading, Arkansas students barely exceeded the state’s expected score (+0.6 scaled score points), which suggests they are performing roughly where one would expect them to given demographics.

One question which should be asked is whether the seemingly small differences between actual and expected achievement in Figure 5 are meaningful or not. To answer this, we ranked all fifty states and the District of Columbia on each state’s difference between observed and expected achievement. Based on this measure, a state with a ranking of 25<sup>th</sup> would be expected to have difference scores around zero, while states with positive difference scores (like Arkansas) would be expected to rank above 25<sup>th</sup>. As shown in the bottom row of Figure 6, Arkansas’ positive difference scores rank the Natural State mostly in the teens. The state’s fourth graders rank 14<sup>th</sup> in math and 11<sup>th</sup> in reading on their difference scores, and in 8<sup>th</sup> grade math Arkansas students rank 12<sup>th</sup>. Consistent with our smaller difference score in 8<sup>th</sup> grade reading, Arkansas ranks 21<sup>st</sup>, which is the lowest of its four rankings. Based on these figures, one can offer a meaningful

Table 1. Arkansas NAEP Scores and Ranks

Achievement Measure	4 <sup>th</sup> Grade Math	4 <sup>th</sup> Grade Reading	8 <sup>th</sup> Grade Math	8 <sup>th</sup> Grade Reading
2011 NAEP Scaled Score	238	217	279	259
Scaled Score Rank (50 States + DC)	36	38	39	43
Difference Score (Achieved - Expected)	+2.6	+2.6	+2.6	+0.6
<b>Difference Score Rank (50 States + DC)</b>	<b>14</b>	<b>11</b>	<b>12</b>	<b>21</b>

answer to the question of whether Arkansas is 5<sup>th</sup> or 48<sup>th</sup>. The scaled score ranks shown in the second row (varying from 36<sup>th</sup> to 43<sup>rd</sup>) are the result both of school quality and countless environmental and demographic factors. To consider school quality, we must account for these factors. If we think about school quality as how well our students learn given the state’s demographic disadvantage, we are better than average; as shown by the rank of our difference scores, we are most likely somewhere in the teens. We’re not fifth, nor are we 48<sup>th</sup>—though perhaps we are closer to the former than the latter.

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