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# Analyzing the 2011 NAEP Results: Where Does Arkansas Stand Now?

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**ARKANSAS EDUCATION REPORT**  
**Volume 9, Issue 1**

**ANALYZING THE 2011 NAEP RESULTS:  
WHERE DOES ARKANSAS STAND NOW?**

**By:**

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**March 7, 2012**

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## EXECUTIVE SUMMARY

In this report, we discuss current and historical data from the National Assessment of Educational Progress (NAEP) in math and reading. The NAEP provides an opportunity to analyze statewide student achievement using national test results. This national analysis provides more information on state-level student achievement than do analyses of the criterion-referenced exams developed separately by each of the states, since these exams are based on different standards and vary a great deal with respect to the intellectual rigor of the assessments. Simply put, if we find that 80% of Mississippi students score at the proficient level on the Mississippi exam while only 75% of Minnesota students score at the proficient level on the Minnesota exam, we can make no assessment of the relative performance of the students in the two states. The exams are different, the scoring is different, and the cut-scores for proficiency are different. Consequently, it is impossible to use state exams (such as the Arkansas Benchmark exams) to make meaningful comparisons between states.

In recent years, the performance of Arkansas students has neither declined nor improved. Regionally Arkansas continues to rank higher than several states (Louisiana, Mississippi, and Tennessee), score at the same level as Oklahoma and Missouri, and to do a bit less well than Texas. Though our scores have not dropped significantly, our rank compared to other states in the U.S. in mathematics has dropped somewhat.

Historically, Arkansas ranked much lower than it does now. However, most of the growth observed in the state occurred in the late '90s and early '00s. In recent years, Arkansas students have stagnated, and even regressed slightly. Furthermore, the racial achievement gaps, as well as the gaps associated with students from different income levels are alarming. While the same can be said at a national level, the performance of at-risk subgroups in Arkansas is very concerning.

Throughout the decade of the 1990s and into the early part of the 2000s, a number of standards-based, accountability-focused reforms were implemented to address the low-standing of Arkansas students relative to the rest of the nation. During this same time period, there was an observable increase in Arkansas' student performance on the NAEP. Between 2003 and 2006, the realm of education policy in Arkansas was characterized by huge changes in laws that affected education funding. Policymakers were reacting to the outcomes of lawsuits launched in the 1980s and 1990s that challenged the adequacy and equality of funding for education throughout the state. The conclusion of the Lakeview case led to reforms related to funding, accountability, and school consolidation in Arkansas. However, these changes have not led to improved performance on this national assessment. In fact, since that time outcomes have stagnated and the achievement gap--which experienced some lessening in the early part of the decade--began to increase.

While this report highlights the lack of progress since the Lakeview reforms were implemented, we are in no way indicating that these reforms caused stagnant student performance. There are a number of factors that influence academic outcomes. However, it is clear that increased funding did not directly translate into an increase in educational outcomes.

## I. INTRODUCTION

State education policymakers in Arkansas, and in all states around the country, take great interest in the state assessment scores published each year and are pleased when they are able to present positive results. This has certainly been the case in Arkansas with the annual publication of the results of student performance on the state Benchmark exams. While the state exams provide useful information that allow policymakers to compare schools and districts *within* Arkansas, they do not allow policymakers to assess the performance of Arkansas students relative to other students in the nation.

Fortunately, the U.S. Department of Education conducts the National Assessment of Educational Progress, or the NAEP, regularly in every state across the nation. The NAEP, also known as the "Nation's Report Card", presents a picture of how students (overall and subgroups of students) perform relative to students in other states and of long term trends in the U.S. and in each state. The National Assessment of Educational Progress (NAEP) is the only nationally representative and continuous test of what America's students know and the level at which students can perform in Math, Science, Writing, U.S. History, Civics and Geography, as well as the arts. Administered in every state and Washington D.C., the NAEP makes it possible to make apples-to-apples comparisons of students from different states. The NAEP is known for being more rigorous than most state standards--and therefore tests students on material that is at a higher level than state assessments typically do. Consequently the NAEP is considered the best measure of state-level student performance.

The NAEP, conducted by the U.S. Department of Education's National Center for Education Statistics (NCES), provides scores for aggregate populations rather than for individual students and schools. Specifically, the NAEP provides results assessing subject-matter achievement, instructional experience, and school environmental factors for student populations and provides subgroup scores within student populations (e.g. black students, Hispanic students, students eligible for free and reduced lunch). By measuring a representative sample from each participating state, the NAEP provides information about students across the nation as a whole and grouped according to specific geographic areas (e.g. Northeast, Northwest). Students from public and nonpublic schools in grades 4, 8, and more recently, 12 participate in the regular test administration.

The primary goal of this report is to highlight current and past performance of Arkansas students on the state-administered math and reading NAEP exams.

This report highlights the performance of Arkansas students on the 2011 administration of the NAEP assessment in both Math and Reading. The report is grouped in four sections. In the first section, we provide a detailed analysis of Arkansas student performance compared to the nation and the region for the most recent NAEP administration. In the next section, we examine how Arkansas students have performed on the NAEP over time, to determine if Arkansas students have shown improvement since NCES began providing state-level data. Next, student subgroup performance is reported. In this section, achievement gaps between Arkansas students on the NAEP are highlighted. In the final section, we will note any shifts in the trends that have occurred over the last twenty years and highlight the historical events surrounding these trends.

## II. CURRENT NAEP PERFORMANCE

### A. Math 2011

The 2011 NAEP results for math indicate that Arkansas students are below the national average in math performance, as are most of the students in the region. The bars in Figure 2 display the mean scale score for each state on the math assessment for the nation, Arkansas, and the region. The brown trend line shows the percentage of students scoring proficient or advanced in math.

Figure 1: Percent of 4th Grade Students Scoring Proficient or Advanced and Mean Scale Scores on the NAEP Math Exam for Arkansas and Surrounding States, 2011<sup>1</sup>

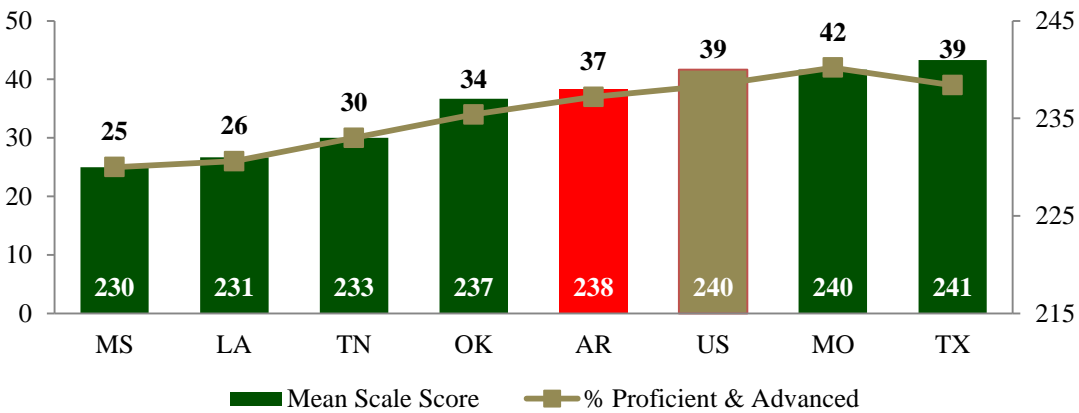
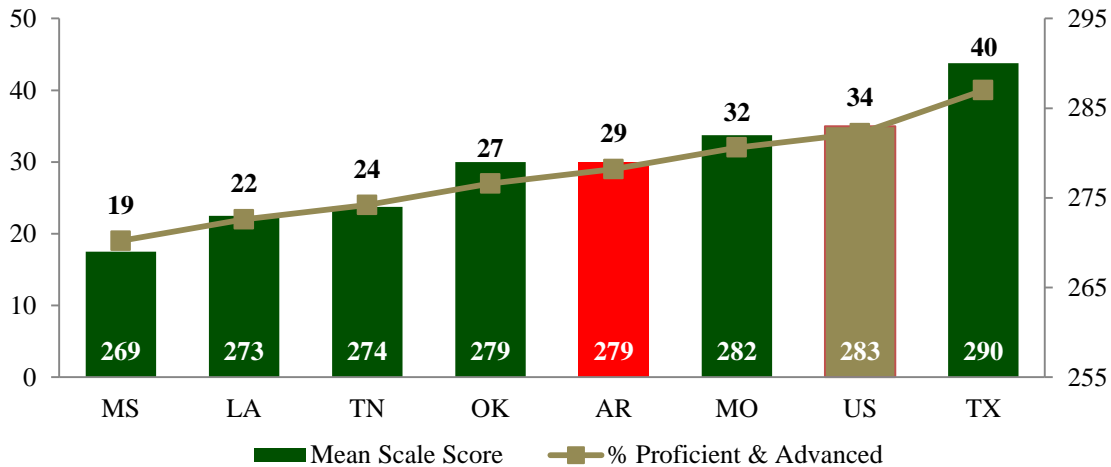


Figure 2: Percent of 8th Grade Students Scoring Proficient or Advanced and Mean Scale Scores on the NAEP Math Exam for Arkansas and Surrounding States, 2011<sup>1</sup>



Arkansas students are below the national average in terms of the percentage of students scoring proficient or advanced in both Grade 4 and Grade 8 Math. Arkansas students ranked 34th out of 51<sup>2</sup> for Grade 4.

<sup>1 1</sup> Source: U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011

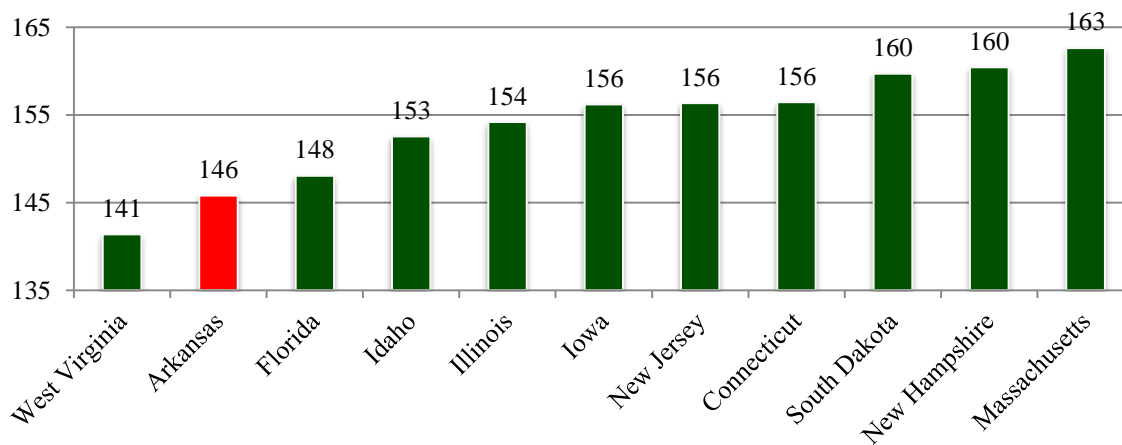
This is a drop in ranking from both the 2007 and 2009 assessments. In 2009, Arkansas ranked 33rd and in 2007 Arkansas ranked 30th. Eighth-grade students ranked 37th out of 51<sup>2</sup> based on the mean scale score. This is an improvement in ranking from the 2009 assessment when Arkansas ranked 40th.

When compared to performance in the region, Arkansas students in Grade 4 and Grade 8 are performing at higher levels than students in Louisiana, Mississippi, Oklahoma, and Tennessee; however, students in Missouri and Texas outperformed Arkansas in both grades. The relative performance of Arkansas students to their regional peers is consistent with previous trends.

The percentage of students scoring proficient or advanced, as reflected in Figure 2, indicate that students are performing better in Grade 4 than in Grade 8, but the discrepancy is greater in Arkansas than many of the other states. In math, 37% of Arkansas students in Grade 4 performed at the proficient or advanced level, compared to 29% in Grade 8. This represents a difference of eight percentage points, while the national average reflects a difference of five percentage points.

Grade 12 Reading and Math assessments have been given only once, and only to a limited number of states. Of the eleven states that administered the exam to high school seniors, only West Virginia fared worse than Arkansas. However, this information should be interpreted with caution as it is not a representative sample of the United States, rather a view of how Arkansas students perform relative to 10 other states.

Figure 3: Mean Scale Score on NAEP Mathematics Exam, 12th Grade Students, 2008-09



<sup>2</sup> Ranked out of 50 states and D.C. (Top Rank = 1)



## B. Reading 2011

Much like the math results, the 2011 NAEP reading results indicate that Arkansas students are below the national average in reading performance, as are most of the students in the region (with the exception of students in Missouri). Figure 4 depicts the mean scale score for students in the nation, Arkansas, and the region. The line graph depicts the percentage of students scoring proficient or advanced on the 2011 reading assessment for the nation, Arkansas, and the region.

Figure 4: Percent of 4th Grade Students Scoring Proficient or Advanced and Mean Scale Scores on the NAEP Reading Exam for Arkansas and Surrounding States, 2011

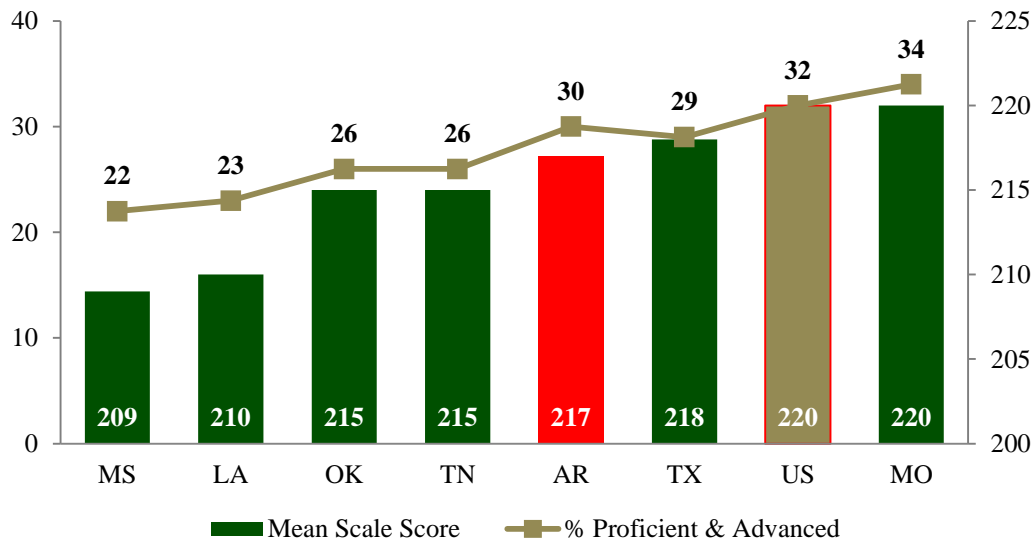
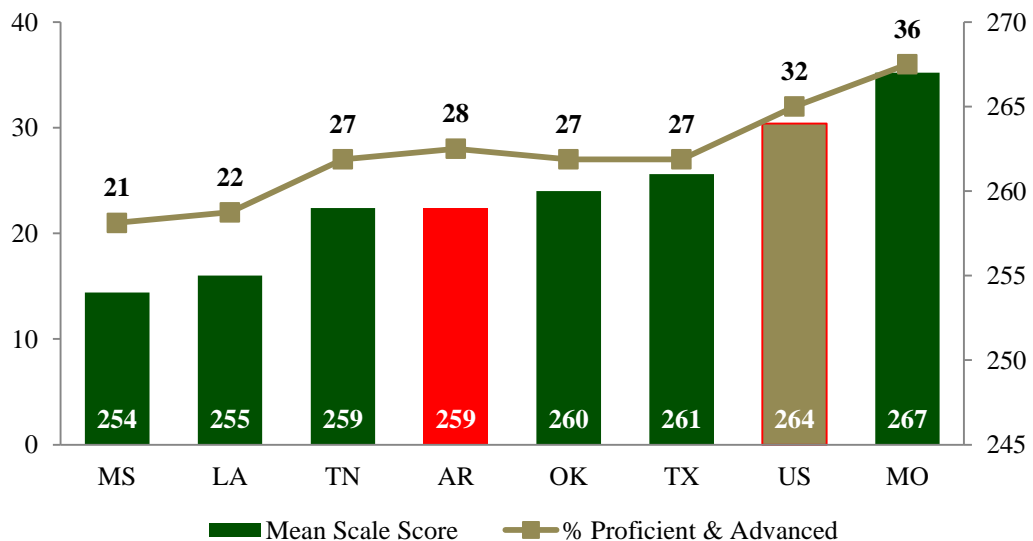


Figure 5: Percent of 8th Grade Students Scoring Proficient or Advanced and the Mean Scale Scores on the NAEP Reading Exam for Arkansas and Surrounding States, 2011



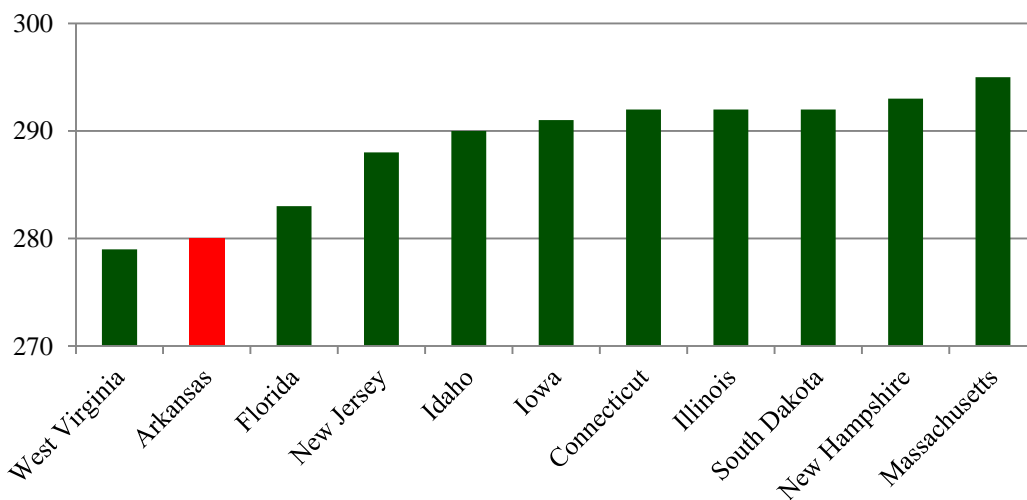
A review of Figures 4 and 5 reveals that Arkansas students are below the national average in both Grades 4 and Grade 8. Nationally, Grade 4 Arkansas students were ranked 37 out of 51<sup>3</sup> and Grade 8 students were ranked 42 out of 51<sup>3</sup>. This is a drop in ranking for 8th grade students from the previous administration of the NAEP in 2009.

Compared to the region, Arkansas students are performing at higher levels than students in Louisiana and Mississippi and at levels similar to students in Oklahoma, Tennessee, and Texas. However, students in Missouri are performing at higher levels than Arkansas students.

While fourth graders generally do better than eighth graders on NAEP Math, both groups perform at similar levels on the Reading NAEP. In fact, the eighth grade students in some of the surrounding states are outperforming their fourth grade counterparts. There was a two percent difference in the number of students that achieved proficiency in Arkansas in the fourth grade compared to 8th grade students.

Figure 6 displays Arkansas' standing among eleven other states in the U.S. on the twelfth grade tests administered in the 2008-09 school year. As mentioned in the previous section, only eleven states participated in the 12th grade assessment, and only in one year. Even so, this provides a limited perspective on the performance of 12th grade students in Arkansas.

*Figure 6: Mean Scale Score of 12th Grade Students on the NAEP Reading Exam for Arkansas and Other States, 2009*



### C. Summary of Current NAEP Results

Across all subject areas, Arkansas students tend to perform slightly below the national average, toward the bottom in national rankings, but approximately at the average for the region. Arkansas students in Grade 4 perform slightly above the regional average in reading and math, with students in Grade 8 performing near the midpoint in both subjects.

<sup>3</sup>Ranked out of 50 states and D.C. (Top Rank = 1)

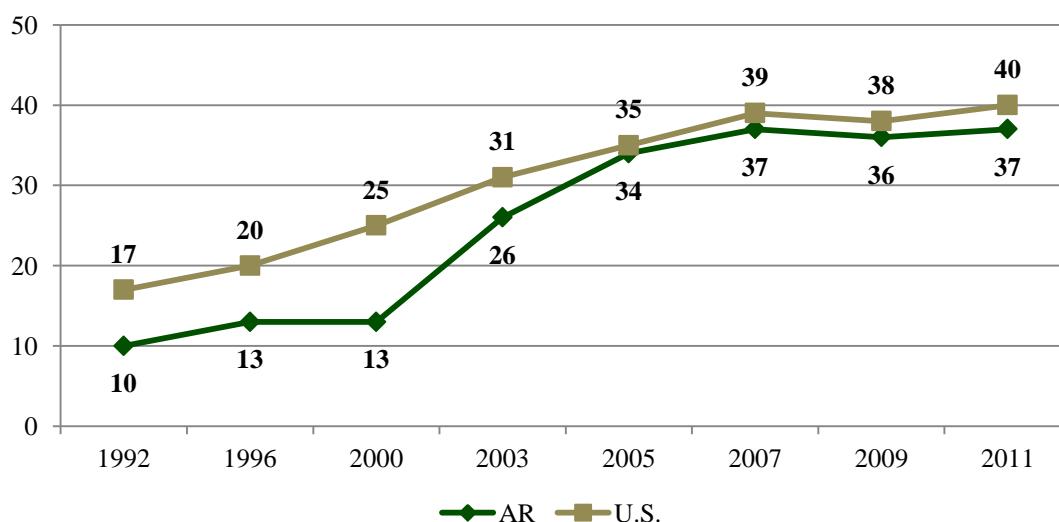
### III. ARKANSAS NAEP SCORES OVER TIME

Years ago, it may have been common to hear the phrase, “Thank God for Mississippi” indicating that if it were not for Mississippi’s consistent standing in last position, Arkansas would rank dead last on all indicators of success. At one point in time, this was actually somewhat close to the truth. However, in the early 2000s, Arkansas began to increase its standing in national rankings of NAEP outcomes. This section provides a detailed view of the trends of student performance in Arkansas over the last 20 years.

#### A. Math

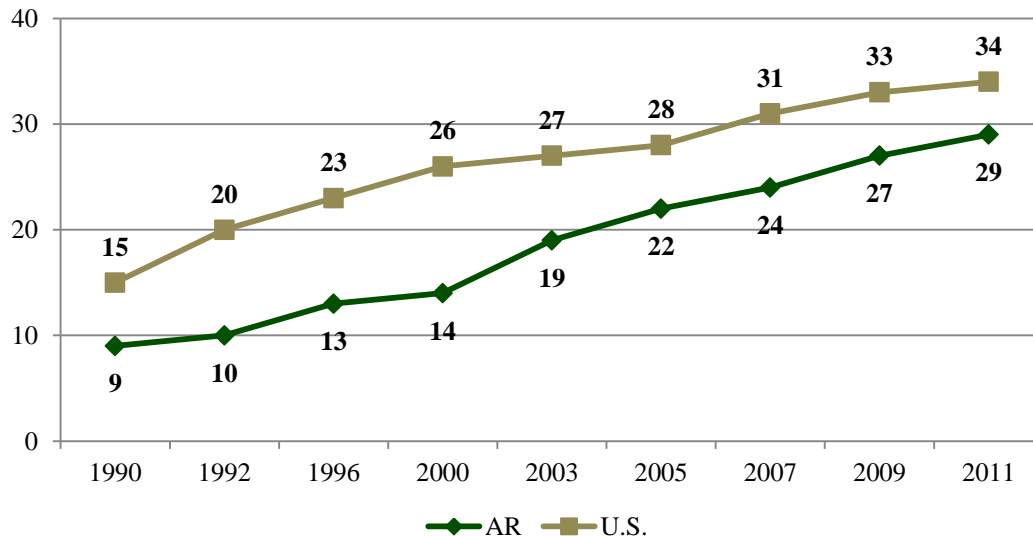
The percentage of Arkansas students in Grade 4 scoring proficient or advanced on the NAEP math exam has improved dramatically since the first administration of the exam, increasing from 10% in 1992 to 37% in 2007 in 2011 (see Figure 7). In 2005, Arkansas students caught up with the national average after a stretch of continued improvement. In 2007, growth began to taper off and students in Arkansas now trail the national average by 3 percentage points.

Figure 7: Percent Proficient or Advanced in NAEP 4th Grade Math Assessments for Arkansas and the United States, 1992-2011



Similarly, at the 8th grade level, dramatic improvement in student scores can be observed since 1990 (see Figure 8 below). In 1990, a mere nine percent of students scored proficient. In 2011, this number was up to 29 percent. Students have been on a steady trajectory of growth at both the national and state level. While Arkansas 8th grade students have failed to “catch up” with their peers nationally, the gap has lessened considerably since the early 2000s.

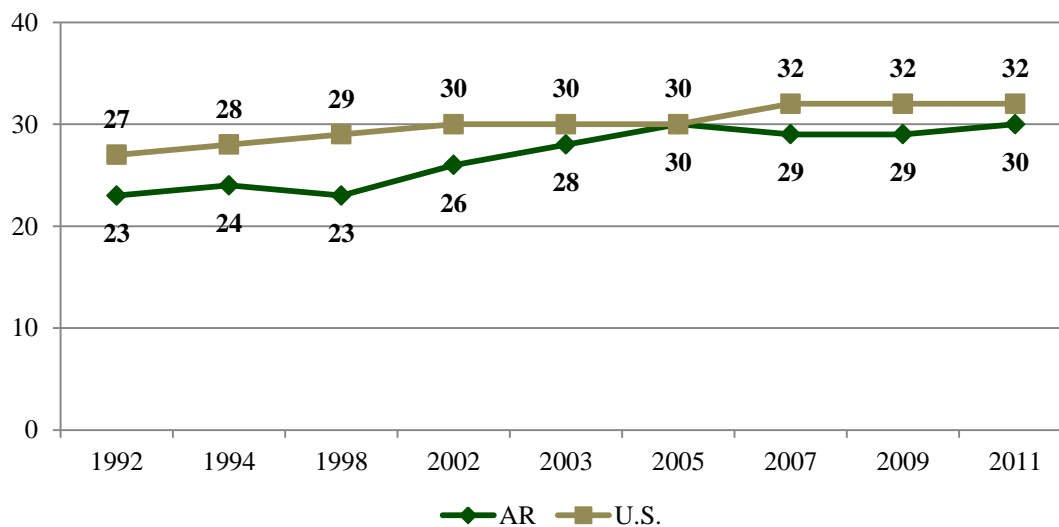
Figure 8: Percent Proficient or Advanced in NAEP 8th Grade Math Assessments for Arkansas and the United States, 1990-2011



## B. Reading

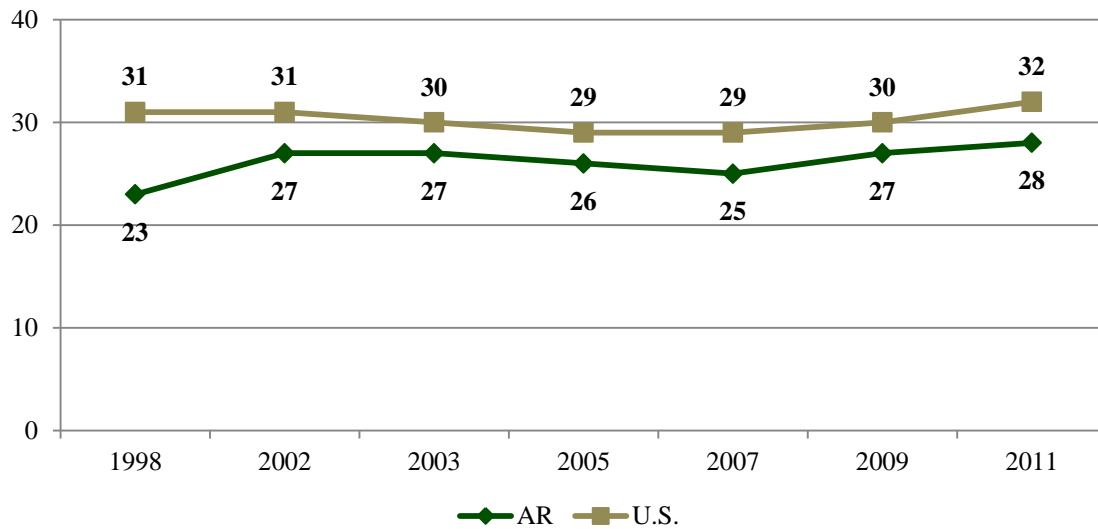
Similar improvement has been observed in Reading performance as in NAEP Mathematics performance. Arkansas fourth grade students began below the US national average and caught the national average in reading in 2005. While students have not experienced growth consistent with U.S. average since that time, the gap between Arkansas and the nation (2 percentage points) is lower than it was in 1992 in grade reading.

Figure 9: Percent Proficient or Advanced in NAEP 4th Grade Reading Assessments for Arkansas and the United States, 1992-2011



Similar trends can be observed in 8th grade reading. The scores only go back to 1998 in 8th grade reading, but as can clearly be seen, Arkansas students performed at a much lower level than the average U.S. student at that time. In 2011, the gap between Arkansas students is around four points. This is slightly larger than the three-point gap observed in 2009 (and 2003). Arkansas appears to be hovering around 3-4 points behind the national average.

Figure 10: Trends in NAEP 8th Grade Reading Performance, Arkansas and the United States, since 1998



While Arkansas students have experienced great growth over the past two decades, the progress of the late nineties and early 2000s appears to have slowed in the past couple of years. In both math and reading at the fourth and 8th grade levels today, Arkansas students hover around 30% of students achieving proficiency. The unfortunate translation is that for every student in Arkansas that reaches proficiency, there are two that do not.

## IV. ACHIEVEMENT GAPS

Many policymakers and stakeholders in the state are concerned about the persistent achievement gaps that exist between students of different racial and income groups. In Arkansas and across the country, students in poverty and in racial minority groups have historically had relatively low student achievement on average. Of course, one of the primary goals of public education is to provide each child an equal opportunity for a quality education regardless of background. While decreasing these achievement gaps is not the sole goal of public education, it is an important indicator of how effective our schools are at leveling the playing field. In Arkansas, a significant number of students are poor. In the 2010-11 school year, sixty percent of Arkansas students were eligible for free or reduced lunches--which is the best indicator of poverty available to researchers. Of Arkansas' 468,066 students, sixty-five percent are white and approximately thirty-five percent are minorities. In this section we analyze both racial and income gaps<sup>4</sup>. As we analyze the achievement gaps between students of different incomes and races, it is important to remember that these student subgroups compose a significant proportion of our student population.

### A. Racial Achievement Gaps

#### *1. Math*

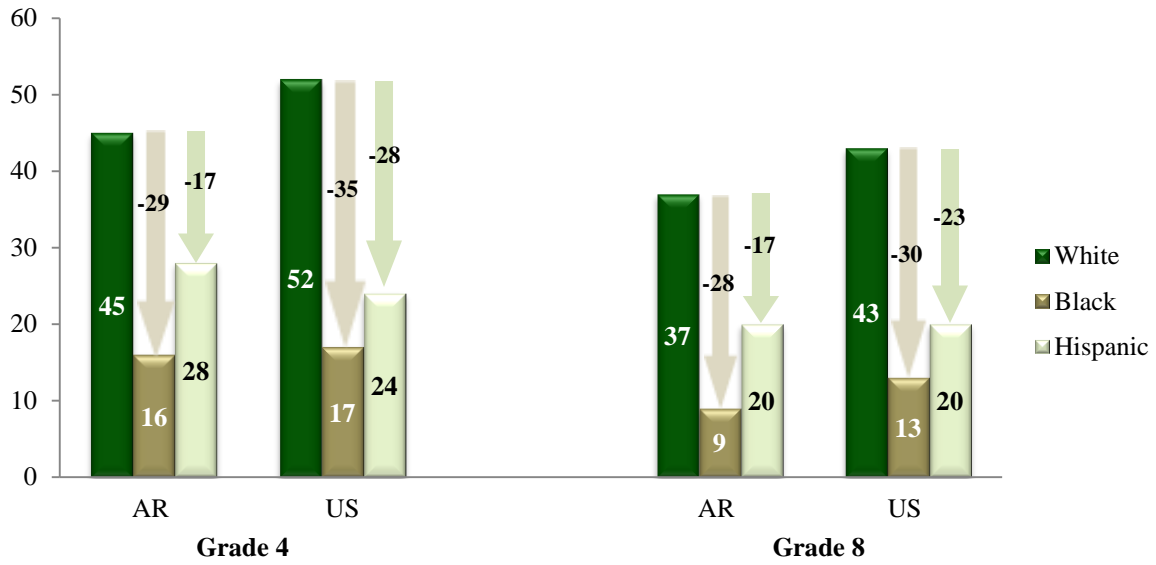
This section analyzes achievement gaps between white students and black students (white-black gap) and between white students and Hispanic students (white-Hispanic gap) in mathematics. The good news is that the gap between Hispanic and white students in mathematics is not as large as the national gaps. This is primarily because Arkansas' Hispanic students outperform Hispanic students nationally. The black and white gaps are not as large in Arkansas as the U.S. national average. However, in the instance of the black-white achievement gap, the reason Arkansas' gap is smaller is that white students in Arkansas perform at a lower level than the national average for white students. In fact, it is very important in each case that we look at the scores of all subgroups and not only at gaps as the gaps alone do not provide good information. For example, we might witness a decreasing income achievement gap if both wealthy and poor students are declining in achievement, but the wealthy students are simply declining faster. We would not want to celebrate this situation, despite the fact that the gap was decreasing. Similarly, if both rich and poor students were experiencing identical levels of very rapid growth and were each outperforming their peers nationally, we would want to celebrate this achievement, rather than express concern that the actual gap was not diminishing.

Thus, in all of our graphs in this section, we present the scores for each subgroup and the arrows indicate the difference (or the gaps) between the scores of the various groups. As can easily be observed there are significant gaps in achievement between black students and their white counterparts. However, most alarming is not the gap in achievement, but the very low level of performance observed for African-American students. Both in the US and in Arkansas, the performance of black students is very low. Most concerning is that only nine percent of black students are proficient at the eighth grade in Arkansas.

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<sup>4</sup> Arkansas Data Center <http://adedata.arkansas.gov/statewide/State/StateProfile.aspx>

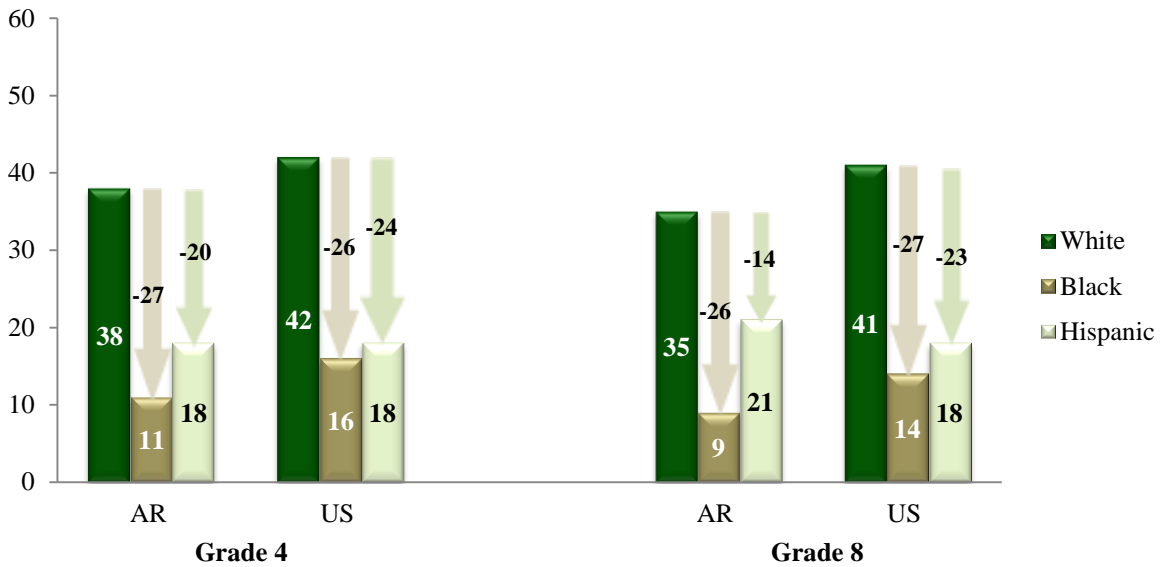
Figure 11: Math NAEP Scores, Percent Proficient and Advanced by Race or Ethnicity, 2011<sup>5</sup>



## 2. Reading

Figure 12 highlights the racial achievement gaps in Reading. Once again, the racial achievement gaps for both the U.S. and Arkansas are large and disturbing. The magnitude of the gap between black students and white students is comparable between Arkansas students and the national average at both the fourth and eighth grade. The gap between white students and Hispanic students is smaller in Arkansas than at the national average.

Figure 12: Reading NAEP Scores, Percent Proficient and Advanced by Race or Ethnicity, 2011<sup>5</sup>



The achievement gap between white and black students is by far the largest gap. The performance of Arkansas' black students is much lower than black students in the U.S. in reading, and slightly lower in mathematics. Regardless of the gap size, there is considerable reason to be concerned about the performance level of the black students in both Arkansas and the U.S.--but especially in Arkansas. At the eighth grade level only 9 percent of black students can perform at the proficient level in math or in reading.

## B. Poverty Gaps

Using school records, NCES categorizes testing data into groups of students who are eligible for the National School Lunch, or commonly known as the Free- and Reduced- Lunch (FRL) program and students who are not eligible for the program. The FRL program allows students from lower income families to receive free- or reduced-price lunches at the school cafeteria. This set of test data allows us to compare the gap between students from families of higher socioeconomic status (SES) and students from families of lower SES.

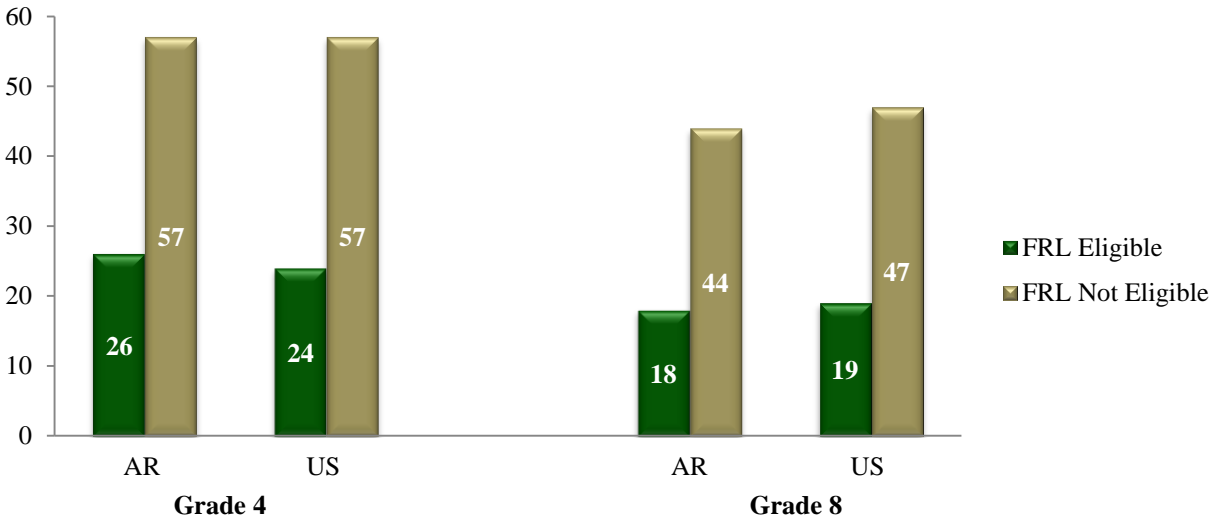
### 1. Math

Figure 13 illustrates the achievement gap between the performance of students from lower SES and higher SES families in Arkansas as well as the national average performance.

<sup>5</sup> Arrows indicate distance of respective minority group from white students



Figure 13: Percent 4th and 8th Grade Students Proficient or Advanced on NAEP in Math by Income, 2011

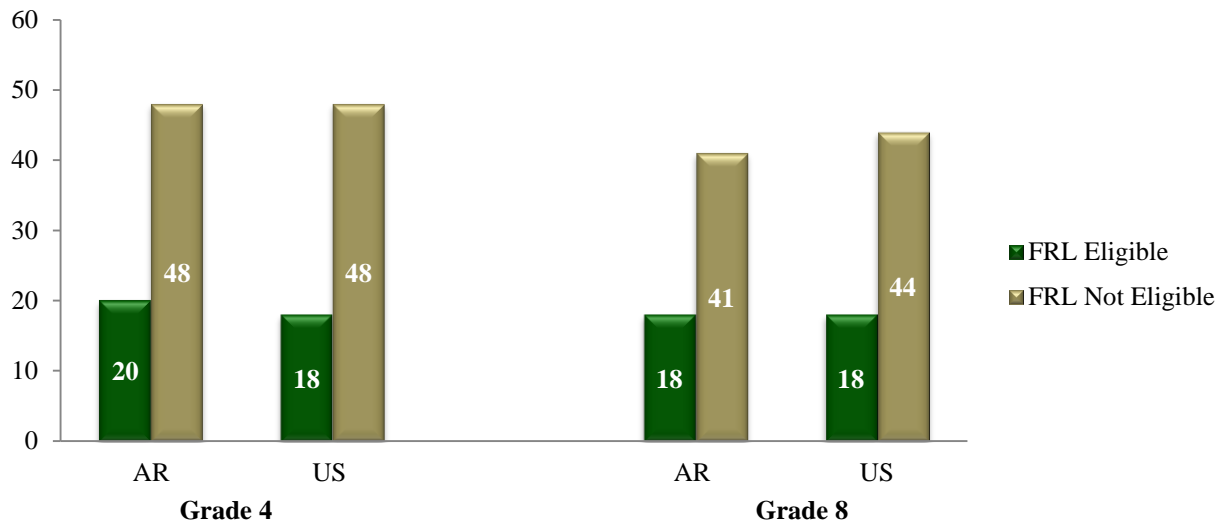


As shown in Figure 13, the gap between the economically disadvantaged students and their peers is as disheartening as the racial achievement gaps. In both the US and the state of Arkansas, the gap between the economically disadvantaged students and their peers hovers around 30 percentage points in mathematics.

## 2. Reading

As can be observed in Figure 14, the income based gaps are not much better in reading. There is a consistent 25 point gap between the percentage of free-and reduced- lunch eligible students reaching proficiency status and those that do not.

Figure 14: Percent 4th and 8th Grade Students Proficient or Advanced on NAEP in Reading by Income, 2011



Hidden in the above figures (Figure 13 and 14) is some good news about Arkansas students. Our non-free- and reduced- lunch eligible students perform at a similar level as their peers nationally in both math and reading. Furthermore, our free- and reduced- lunch students outperform the national free and reduced lunch average. How could Arkansas underperform the national average by so much if it is so close (and even higher) in each of the subgroup scores? The answer lies in the fact that a disproportionate number of Arkansas students are economically disadvantaged. As can be clearly observed, low-income students perform drastically worse than their more advantaged peers. The large number of lower performing, low-income students negatively impact our state average. If our student population looked similar to other states, it is likely that we would perform closer to the national average.

This, of course, in no way negates our responsibility to our low-income students, nor does it excuse the achievement gaps that exist between poor students and their advantaged peers. However, it does show that comparable to the rest of the U.S., Arkansas students perform closer to the national average than their ranking indicates.

### C. Economically Disadvantaged Students Performance over Time

As observed in the previous section, the outcomes of the large percentage of students considered disadvantaged in Arkansas can sometimes paint a less than accurate picture of student performance in comparison to the rest of the U.S. The next few tables examine the extent to which the gap between low-income students and their more advantaged peers has changed over time.

#### 1. Math

Figure 15 is an index of the performance of fourth and eighth grade students in Arkansas as compared to the national average disaggregated by income level. The red line signifies the point at which Arkansas students exceed the national average. As can be seen, both fourth and eighth grade students started far below the national average in 1996, with the non-free- and reduced- lunch eligible actually far underperforming their peers nationally. Consistent with trends previously discussed, Arkansas gradually became closer to the national average in all grades and at all income levels. In 2005, 4th-grade low-income students actually crossed the national average with 4th-grade advantaged students not far behind.

However, with the exception of eighth -grade free- and reduced- lunch students in 2011, this upward trend began to diminish and students either began to plateau or decline after 2005 and 2007.

Figure 15: Arkansas 4th and 8th Grade Math Scores Indexed Against the National Average by Income Level, 1996-2011

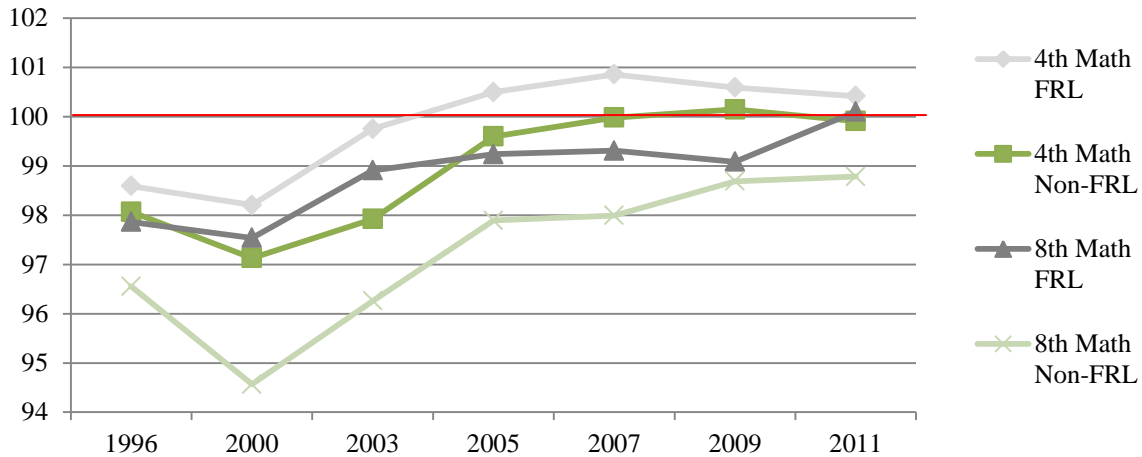


Table 1 provides a different view of this information as it shows the difference between free- and reduced- lunch eligible students and their peers from within Arkansas. The column labeled “GAP” represents the difference in mean scale score between Arkansas students from different income levels. As you can see the gaps within the state are large and changed by only one point on the average mean scale score since 1996.

The achievement gap in mathematics is not larger in 2011 than it was in 1996. However it has not moved by a significant amount either. In the early 2000s, some progress was made in terms of bridging this achievement gap. However, just as will be seen in reading, all ground that had been gained was eventually lost again and the gap began to widen to its previous levels.

Table 1: Arkansas 4th and 8th Grade NAEP Mean Scale Score By Income, 1996-2011

|      | 4th Math |         |            | 8th Math |         |            |
|------|----------|---------|------------|----------|---------|------------|
|      | FRL      | Non-FRL | GAP        | FRL      | Non-FRL | GAP        |
| 1996 | 204      | 227     | <b>-23</b> | 246      | 270     | <b>-24</b> |
| 2000 | 205      | 228     | <b>-23</b> | 242      | 267     | <b>-25</b> |
| 2003 | 221      | 239     | <b>-18</b> | 256      | 276     | <b>-20</b> |
| 2005 | 226      | 247     | <b>-20</b> | 260      | 282     | <b>-23</b> |
| 2007 | 229      | 249     | <b>-20</b> | 263      | 285     | <b>-22</b> |
| 2009 | 229      | 250     | <b>-22</b> | 264      | 290     | <b>-26</b> |
| 2011 | 230      | 252     | <b>-22</b> | 269      | 292     | <b>-23</b> |

## 2. Reading

Figure 19 shows the Arkansas NAEP Reading scores disaggregated by income level indexed against the same subgroups nationally. The reading scores followed the same trends as the math, except for the changes observed were more drastic. Once again, both free- and reduced- lunch eligible students and their more advantaged peers lagged behind the national average in the 90s. After the ACTAAP reforms, progress was made and poor students caught the national average. The advantages were not as strong for their more advantaged peers, but still progress was made. In 2005, this progress began to diminish and even revert to lower levels. Since 2009, progress has stagnated.

Figure 16: Arkansas 4th and 8th Grade Reading Scores Indexed Against the National Average by Income Level, 1996-2011

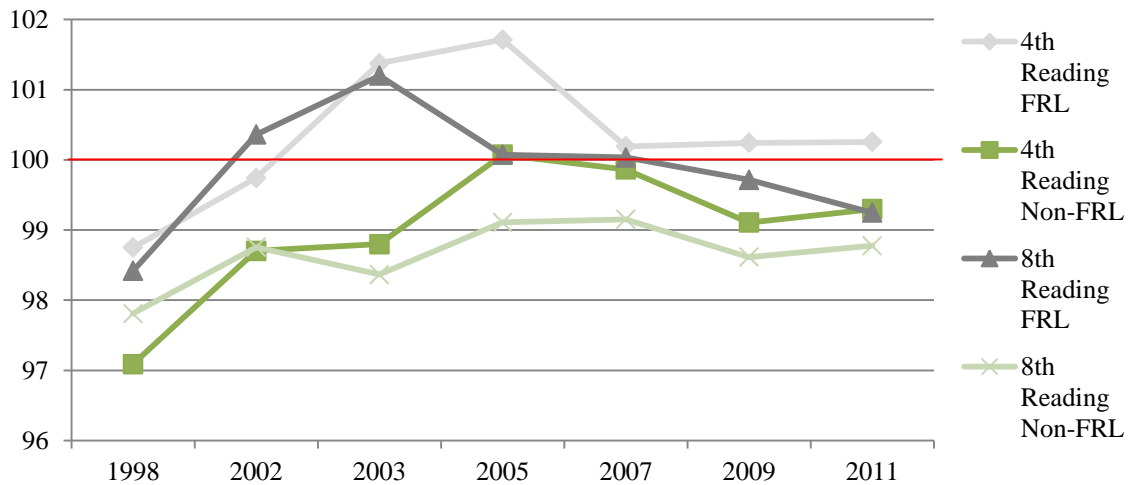


Table 2: Arkansas Mean Scale Score, NAEP 4th and 8th Grade Reading Tests, by Income Level

|      | 4th Reading |         |     | 8th Reading |         |     |
|------|-------------|---------|-----|-------------|---------|-----|
|      | FRL         | Non-FRL | GAP | FRL         | Non-FRL | GAP |
| 1998 | 196         | 221     | -25 | 243         | 264     | -21 |
| 2002 | 202         | 227     | -25 | 250         | 268     | -18 |
| 2003 | 204         | 227     | -23 | 250         | 267     | -17 |
| 2005 | 206         | 230     | -24 | 247         | 268     | -21 |
| 2007 | 205         | 232     | -27 | 247         | 269     | -22 |
| 2009 | 207         | 230     | -23 | 248         | 269     | -21 |
| 2011 | 207         | 233     | -26 | 250         | 272     | -22 |

Table 3 reveals that though the achievement gap between low-income students and their more advantaged peers closed somewhat between 1998 and 2005, that progress began to revert in 2007 and by 2011, The achievement gap between low-income students and their more advantaged peers is actually larger than it was in 1998, though not by a large amount.

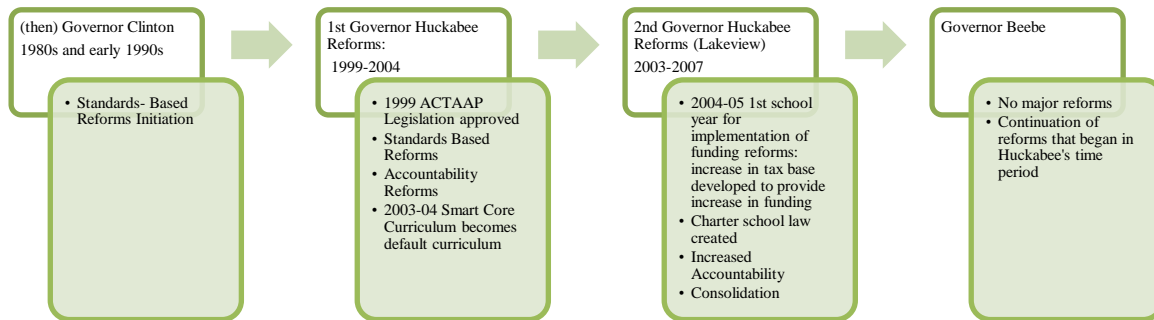
## **D. Summary of Gaps in Achievement**

In conclusion, in both math and reading, there are substantial achievement gaps that exist between students of different races and income levels. Black students in Arkansas perform at a similar level to that of students with disabilities. These gaps exist at both the state and national level. The fact that Arkansas has a disproportionately large number of poor students leads to lower overall scores. However, in reality, our poor students perform as well or better as poor students nationally. The same can be said of our wealthy students (in certain grades). Nonetheless, in order to truly effect change in Arkansas, and the U.S. for that matter, the stubborn achievement gaps between students of different races and income levels need to be addressed.

## C. TIMELINE OF REFORMS

No one could accuse Arkansas policymakers or education leaders of sitting idle while students fail to achieve. In fact, numerous policies and reforms have been implemented in hopes that student performance would improve. There have been two major “currents” of education reform that have streamed into Arkansas. The first--standards-based reforms--were initiated by then Governor Bill Clinton and fully implemented by former Governor Huckabee in 1999 along with accountability reforms as part of the ACTAAP legislation. This initial legislation was improved upon in 2003 with the full adoption of the Smart Core curriculum. The second set of reforms occurred as a result of the *Lakeview* litigation. The resultant reforms primarily focused on increasing school funding, enhancing accountability and assessment, and the consolidation of small school districts. It should be noted that Governor Beebe was a member of the legislature that approved the majority of these reforms initially. In this section of the report, we look at educational progress in Arkansas since the implementation of each of these reforms.

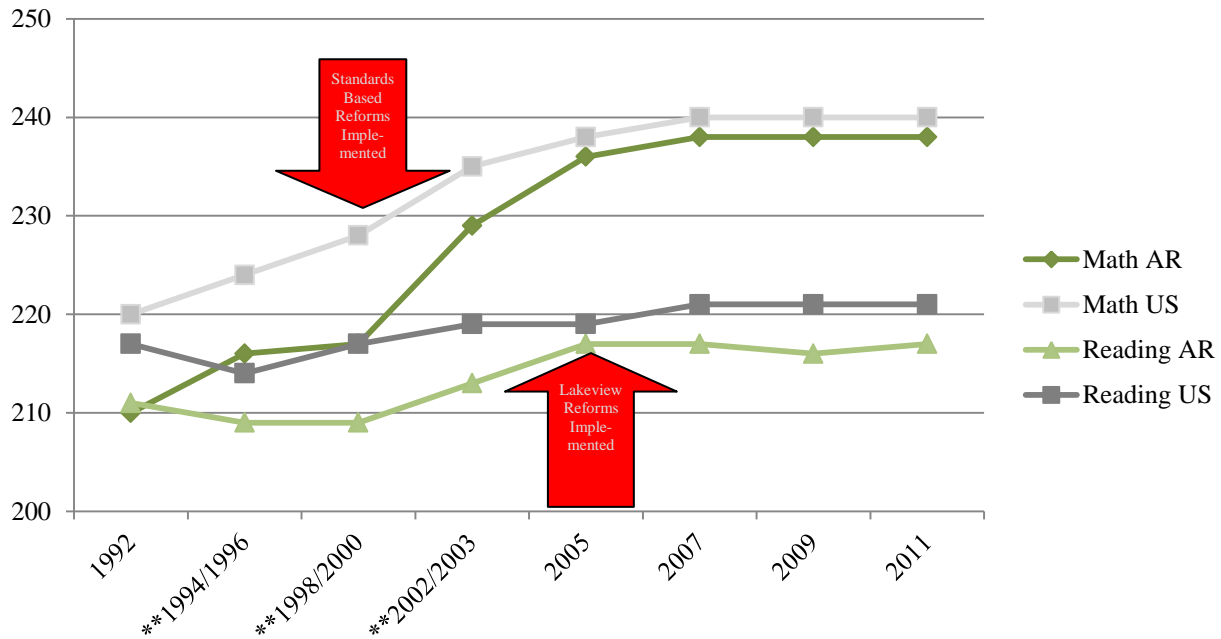
Figure 17: Timeline of the Arkansas Education Reforms by Governor



## A. Student Performance Trends

There really is no perfect way to measure whether these reforms had a direct effect on student performance. However, we can look at trends over time in Arkansas as compared to the national average to determine whether Arkansas experienced growth beyond that of the national average as a whole. As can be seen in Figure 16 below, in the early 90's, Arkansas students performed far below the national average. After the standards based reforms in the 90's, Arkansas students began to experience sweeping improvements, especially in the area of mathematics, but to some extent also in literacy.

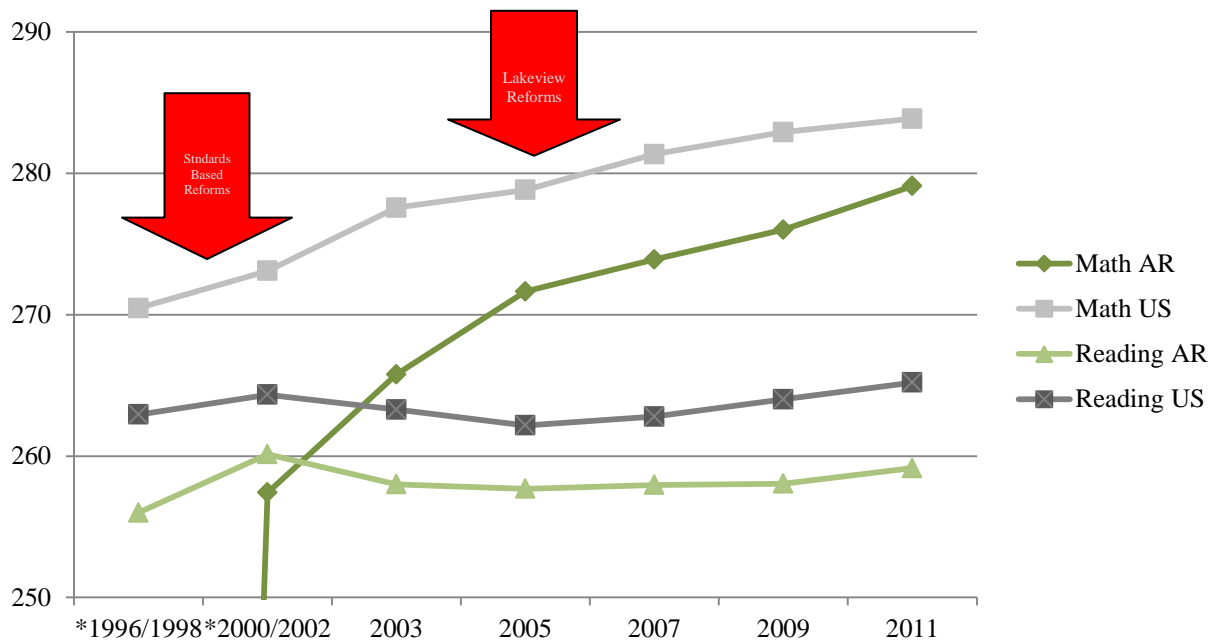
Figure 18: 4th Grade Math and Reading NAEP Scores, Arkansas and US, 1992-2011<sup>5</sup>



Lakeview reforms would have begun to be implemented for the first time in the fall of 2004-05 school year. Outcomes could have been influenced by these reforms in 2005, but it is more likely that 2006 or 2007 would have been a better indicator of the impact of these improvements. Therefore the NAEP results of 2007 and beyond would be our best indicator of impact. The NAEP outcomes do not show the same level of change after the financial reforms as those observed after the standards-based reforms. In fact, outcomes have stagnated since this time.

Figure 19 shows the educational outcomes of eighth graders in both reading and math in Arkansas and the U.S. The red arrows on these graphs indicate when both the ACTAAP legislation and funding reforms were implemented. Although growth can be observed in fourth grade students in math after both the ACTAAP legislation and funding reforms, reading scores for eighth grade students are fairly stagnant. Student outcomes in mathematics on the other hand, however, increased dramatically after the standards-based reforms and continue to consistently increase after the funding reforms of 2005. In fact, for the first time since 2005, the gap between Arkansas mathematics scores in eighth grade and the U.S. national average appears to be decreasing.

Figure 19: 8th Grade Math and Reading NAEP Scores, Arkansas and US, 1996-2011<sup>6</sup>



After looking at the long-term trend lines, it is evident that there has been a significant amount of change in the performance of both Arkansas' students and students nationally in math at both the fourth and eighth grade level. A large part of this change occurred after the standards-based reforms were implemented in the late nineties early 2000s. However, both the U.S. and Arkansas continued to see incremental growth since 2005.

Unfortunately, the same cannot be said of reading outcomes. Arkansas experienced growth in fourth reading since the implementation of standards and accountability of the late nineties, but has stagnated since 2005. At the eighth grade level, reading outcomes have stayed flat since 2000 after initially lowering in 2003. The national story is similar.

## B. Trends in Overall Funding

It is tempting to look at these trend lines and assume that the accountability and standards reforms of the late nineties produced positive results, but increased funding did not. However, upon closer examination of the financial data, it is clear that the ACTAAP reforms were accompanied by substantial boosts to education funding. Therefore any associated results cannot be interpreted without also noting a correlation in increased funding as well. As can be seen in Table 3, Arkansas experienced two major bumps in funding, the first in 2001-02, the second in 2004-05.

<sup>6</sup> Scores with asterisks indicate the Math and Reading tests were conducted in different years. The first year is reading, and the second is math. The tests were taken in the same sequence.



Table 3: U.S. And Arkansas Total Per Pupil Expenditures, 1994-2008<sup>7</sup>

|               | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-2000 | 2000-01 | 2001-02 | 2002-03 | 2003-04  | 2004-05  | 2005-06  | 2006-07  | 2007-08  |
|---------------|---------|---------|---------|---------|---------|-----------|---------|---------|---------|----------|----------|----------|----------|----------|
| Arkansas      | \$4,459 | \$4,710 | \$4,840 | \$4,999 | \$5,193 | \$5,628   | \$5,942 | \$6,676 | \$6,981 | \$7,307  | \$8,243  | \$8,748  | \$9,152  | \$9,460  |
| United States | \$6,723 | \$6,959 | \$7,297 | \$7,701 | \$8,115 | \$8,589   | \$9,180 | \$9,611 | \$9,950 | \$10,308 | \$10,779 | \$11,338 | \$12,015 | \$12,744 |
| AR % Change   |         | 6%      | 3%      | 3%      | 4%      | 8%        | 6%      | 12%     | 5%      | 5%       | 13%      | 6%       | 5%       | 3%       |
| US % Change   |         | 4%      | 5%      | 6%      | 5%      | 6%        | 7%      | 5%      | 4%      | 4%       | 5%       | 5%       | 6%       | 6%       |

Figure 20 more clearly shows the trend line of increased spending in the state. It is obvious in looking at this trend line that though an increase in funding was formally legislated in 2005, funding increased long before that, possibly as a result of the ongoing lawsuits.

Figure 20: US and Arkansas Total Expenditures per Pupil Expenditures



<sup>7</sup> Source for US: [http://nces.ed.gov/programs/digest/d10/tables/dt10\\_190.asp](http://nces.ed.gov/programs/digest/d10/tables/dt10_190.asp) Source for AR: [http://nces.ed.gov/programs/digest/d10/tables/dt10\\_194.asp](http://nces.ed.gov/programs/digest/d10/tables/dt10_194.asp)

## C. Trends in Performance for Economically Disadvantaged Students

It is important to remember that these reforms, especially the Lakeview reforms of 2005, were initially intended to benefit economically disadvantaged students. And as we have previously seen, the outcomes of the large percentage of students considered disadvantaged in Arkansas can sometimes paint a less than accurate picture of student performance in comparison to the rest of the U.S. The next few tables examine the extent to which the gap between low-income students and their more advantaged peers changed after each of these reforms.

Although both poor students and advantaged students grew in performance in reading since 1998, the growth primarily occurred before 2005. The increase in performance was much larger - specifically for the low-income students - before 2005. The cumulative growth has not been large for either group since the administration of the 2005 NAEP exam. Table 4 shows the cumulative growth for 2 time periods 2000-2005 and then 2007-2011 (a 5- and 4- year time period).

*Table 4: Cumulative Gains for Arkansas Students after Reform Implementation*

|                                   | 4th Math |         | 8th Math |         | 4th Reading |         | 8th Reading |         |
|-----------------------------------|----------|---------|----------|---------|-------------|---------|-------------|---------|
|                                   | FRL      | Non-FRL | FRL      | Non-FRL | FRL         | Non-FRL | FRL         | Non-FRL |
| Score Change<br>2000 or 2002-2005 | 21       | 8       | 17       | 15      | 4           | 3       | -3          | -1      |
| Score Change<br>2007-2011         | 1        | 3       | 6        | 7       | 2           | 1       | 2           | 3       |

There was a large amount of growth after initial implementation of the standards-based and accountability reforms of the 90s and early 2000s for both groups of students (with the exception of eighth grade students in Reading, which was negative). That same level of growth has not since been observed--despite a large increase in funding.

## D. Major Educational Initiatives and Trends in Achievement

In conclusion, it appears that there were observable increases in student performance on the NAEP in the late nineties and early 2000s, after the implementation of the standards-based reforms begun by the Clinton Administration and implemented fully during Huckabee's tenure. However, progress began to stagnate around 2005 for Arkansas at both grade levels in math and literacy--with the exception of eighth grade math scores. Although both low-income students and their more advantaged peers had better outcomes than in the late 90s, their trajectory upwards has idled since about 2005. Furthermore, the achievement gap between low-income students and their peers--has begun to revert after diminishing for a season in the early 2000s. Overall, student achievement increases followed closely after the initiatives of the late 1990s; thus far, we have not observed the same increases following the Lakeview reforms.

## V. CONCLUSIONS

This overview of the NAEP results brings both good and bad news for Arkansas. As for the good news, the NAEP scores demonstrate that Arkansas students have come a long way since the early 1990s. In the late 1990s and early 2000s, Arkansas students experienced substantial growth and surpassed other states as student performance moved closer to the national average. Furthermore, upon disaggregating the data, it is clear that Arkansas' economically disadvantaged perform as well, and in some cases even outperform, their peers nationally. Similarly, students in Arkansas that are not economically disadvantaged also outperform their peers nationally. Arkansas scores appear lower than other states simply by nature of having more students in poverty.

However, our examination of more recent NAEP results also uncovers some bad news. Perhaps most importantly, the NAEP scores continue to show persistent and substantial achievement gaps between our students most advantaged students and their less advantaged peers. This is particularly troubling in Arkansas as we are home to a greater share of low-income students than other states across the nation. It is important that we address the unique challenges facing these students more effectively. Despite progress made in the late 1990s and early 2000s, the performance of economically disadvantaged students still lags far behind that of their more advantaged peers.

The second bit of troubling news is that the achievement growth experienced in the late 1990s has not continued in most subjects and ages since the 2005 administration of the NAEP exam. It is unclear why this growth has stagnated. It is possible that the first set of reforms, the ACTAAP reforms, were more effective reforms than the ones implemented as a result of the Lakeview litigation. It is also equally possible that the initial standards-based reforms, coupled with an infusion of funds in the late 1990s, more easily catalyzed change because the performance at that time was so low. A third possibility is that the Lakeview reforms have taken longer to implement and consequently, have not had sufficient time to have an effect on education. While the funding aspect of those reforms was implemented immediately, other aspects, such as Act 35, are just now being realized.

Regardless of the reason that growth has stagnated, it is clear that educators and policymakers must look forward and continue to push Arkansas forward. State lawmakers have taken two steps toward improving education in Arkansas in the last decade. And at least after the first step, there was a marked improvement in student performance. Nevertheless, despite improvements in policies, funding, standards, and assessments, Arkansas students continue to lag behind the national average in both math and reading.

In his "State of the State" address that opened the legislative session in 2003, on the heels of the Lakeview ruling, Governor Huckabee urged his fellow policy makers to join him in not being another footnote in the pages of Arkansas history. He warned his fellow lawmakers, "We'll continue to lose until we finally fulfill the constitutional mandate for an adequate, efficient, suitable, equitable education for every single boy and girl in this state." Indeed, two major sets of reforms were implemented during his tenure.

Despite the progress that has been made, Arkansas' system of public education is still in major need of reform. While Arkansas is no longer at the bottom of the pack, Arkansas students are no longer gaining ground. Consequently, fewer than one in three Arkansas students is considered proficient in basic math and literacy skills. Bold action is required, once again, from our education leaders and policymakers to make substantial changes in the manner in which students in Arkansas are educated. If anything, the most recent NAEP scores should represent a warning call to our educators and education leaders that our recent growth has slowed. It is our hope that Arkansas leaders will, once again, take bold action and push Arkansas forward.