Rise and Fall of Texas STEM Education:
Evidence from the nation's report card

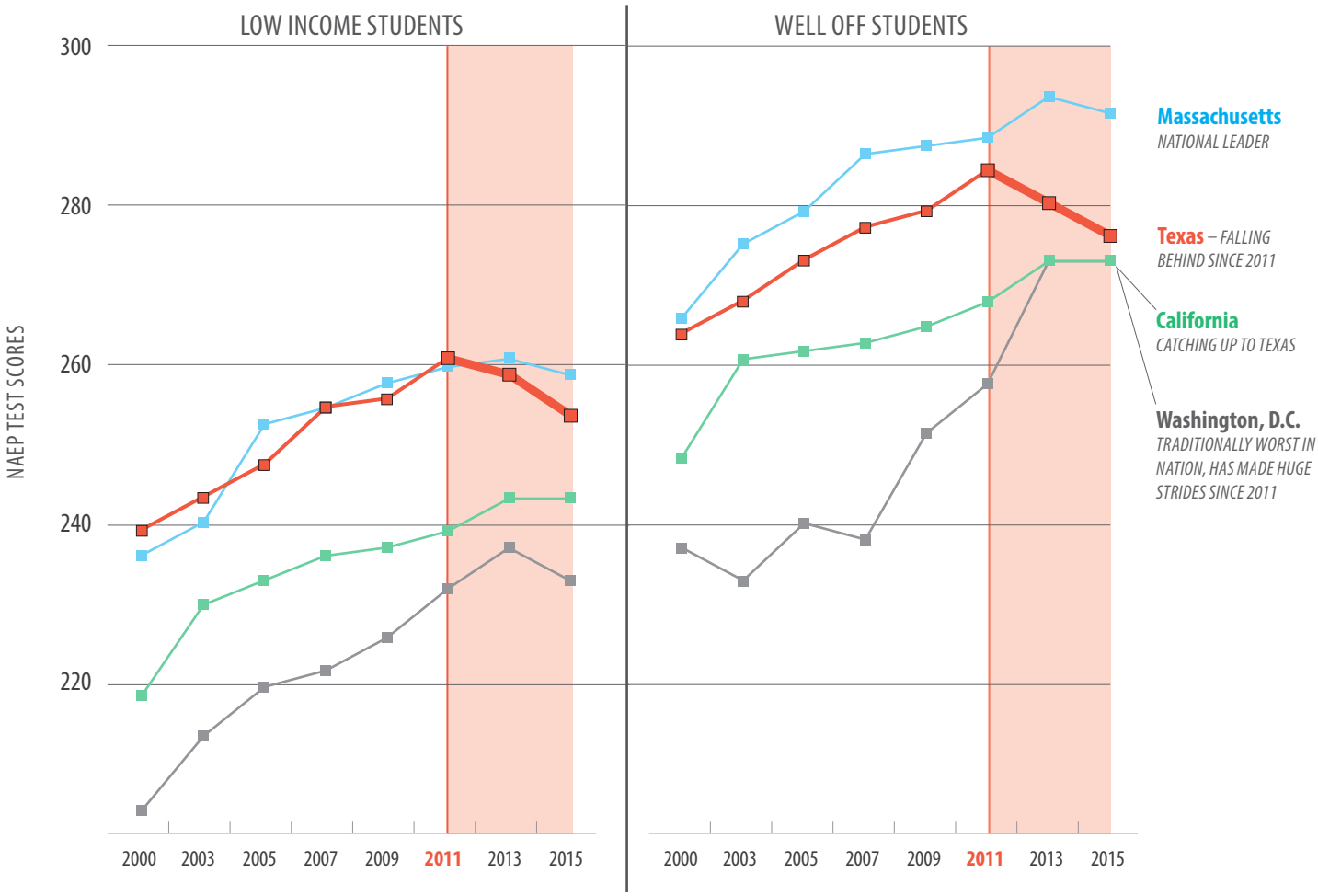
Math scores of Texas 8th graders rose to lead the nation in 2011. They have been dropping ever since.

The nation's report card – the National Assessment of Educational Progress, or NAEP – first released results state by state starting in 1999. New results at 4th and 8th grade have come out every two years since. At the start Texas' results in 8th grade mathematics were middle of the pack, but we made improvements every year. By 2011, Texas had the nation's highest average score for low-income students, defined as those eligible for the federal free and reduced lunch program, just above Massachusetts. For well-off students, those not eligible for free and reduced lunch, Massachusetts was first and Texas was second. This put Texas neck and neck with the state often viewed as the US education leader.

Breaking results down by income is important in this comparison. Students eligible for free and reduced lunch consistently score 20 to 30 points lower on

FIGURE 1 | 8TH GRADE MATH SCORES BY INCOME

Math scores of Texas 8th graders led the nation in 2011. Why have they been dropping ever since?



average. Texas students are twice as likely as those in Massachusetts to have incomes low enough to qualify for free and reduced lunch. Currently, 60 percent of Texas students are identified as low-income.[1] This means that Texas' academic achievements are best examined separately. The results can also be broken down by racial and ethnic groups. When this is done, the story is substantially the same. Texas had the nation's highest 8th grade math scores for Black and Hispanic students in 2011.

Since 2011, however, the growth of the previous ten years reversed course. Scores dropped significantly in 2013 and again in 2015.[2] They dropped for low-income students, for Black students, and for Hispanic students. Scores dropped most rapidly for well-off students.

It is not possible to be certain why Texas scores rose and fell in this way, but plausible explanations are not hard to find. From 2000 through 2011, state funding for public schools in Texas was stable or increasing. Texas was one of the original homes of the movement to increase student performance by measuring test scores disaggregated by subgroup with expectations that they increase each year. From 2003 until 2012, Texas had a single set of statewide tests used year after year through elementary, middle, and high school. Students had to pass math and reading tests at 5th and 8th grade or risk being held back. Special tutoring and support programs were in place for students falling behind grade level expectations.

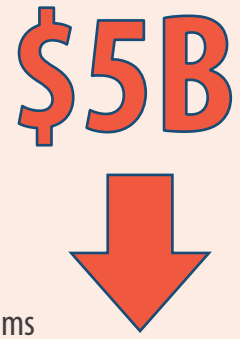
All these elements of success went away after 2011, and student achievement went away with them. In 2011, the legislature cut the state public education budget by more than $5 billion over the biennium, so that the average expenditure per child dropped by around $500/year. Five years later expenditures still had not fully recovered. Programs for bilingual students were particularly hard hit. Special education spending has declined, and programs to support students struggling to pass exams were nearly eliminated.

Furthermore, the state rolled out a new set of exams in 2012 designed to raise academic standards. But instead, these changes began a period of testing chaos. For 2015, after protests from parents and advocates that passing scores were being raised too quickly,

2011 AND BEYOND

Since 2011, the Texas Legislature has made big changes to education:

- Cut public education budget by $5 billion
- Less spending on supports for struggling students
- Rolled out new set of exams



mathematics results for third through eighth grade were removed from the school accountability system. In 2016, the requirement that 5th and 8th graders pass math and reading before advancing to the next grade was also eliminated.

NAEP results are an important measure because they are a national assessment that is not directly tied to changes in state tests. The 8th grade NAEP mathematics scores are particularly relevant because math is a strong indicator of future academic success, and this is the highest grade level for which NAEP provides results by state.

It should have been a source of pride that Texas had some of the best academic scores in the nation. Unfortunately, we must now ask hard questions as to why our state has fallen so quickly from its leading position. With public debate centered on whether Texas is still spending too much on education and testing students too often, there is reason to be concerned about further decline.

ENDNOTES

1 Families with incomes at or below 130 percent of the poverty line ($39,975 for a family of four) qualify for free lunches and families with incomes between 130 percent and 185 percent of the poverty line ($56,887 for a family of four) qualify for reduced lunch.

2 The drop in Texas scores between 2011 and 2015 is large compared with statistical uncertainty, so it is significant. However, the difference in score between Texas and other states is not large enough to be completely sure how Texas ranks. In 2015, Texas had the 6th lowest score in eighth grade math for low-income students, but taking into account statistical uncertainty it could be tied for second place with around 12 other states.

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