Financial Allocation Study for Texas

www.FASTexas.org

Tom Currah
Senior Advisor and Data Analysis Director
Texas Comptroller of Public Accounts
Financial Allocation Study for Texas (FAST)

- The 81st Texas Legislature passed House Bill 3, requiring Comptroller Susan Combs to perform a public education study.

- Initial report was released December 8, 2010. Subsequent reports released September 2011 and September 2012.

- Both the report and a comprehensive web tool are available at:

  www.FASTexas.org
HB 3, Section 39.0821

a) The comptroller shall identify school districts and campuses that use resource allocation practices that contribute to high academic achievement and cost-effective operations. In identifying districts and campuses under this section, the comptroller shall:

1) evaluate existing academic accountability and financial data by integrating the data;

2) rank the results of the evaluation under Subdivision (1) to identify the relative performance of districts and campuses; and

3) identify potential areas for district and campus improvement.
b) In reviewing resource allocation practices of districts and campuses under this section, the comptroller shall ensure resources are being used for the instruction of students by evaluating:

1) the operating cost for each student;

2) the operating cost for each program; and

3) the staffing cost for each student.
Guiding Principles

School districts and campuses should be compared in a manner that is fair.

- FAST measures take into account the differences among the state’s many school districts and campuses.
- No top-to-bottom ranking of school districts and campuses.
- Districts and campuses can be compared across a range of measures using “multiple lenses.”
FAST Overview

• Composite Academic Progress:
  – Model controls for variables research has shown affect student performance.
  – Intended to take into account different characteristics of student populations.
  – Measured against all other districts or campuses in Texas.

• Spending Index:
  – District and campus spending measured against group of up to 40 “fiscal peers.”

• FAST rating:
  – Calculated by combining Composite Academic Progress and Spending Index.
The FAST project uses existing data to analyze district and campus performance. It requires no new data from districts or schools.

To build the best measure of resource allocation, FAST relies in part on data from the UT-Dallas Education Research Center (ERC), which provides access to student-level data not publicly available from TEA.
Expert Advice and Review

• Consultants

• Superintendent Advisory Committee

• Technical Teams
  – Academic Performance
  – Financial Performance

• Peer Reviewers
  – Nationally-recognized experts who vetted methodologies

• Other stakeholders
  – School board members, professional education associations, education policy groups, business leaders
Spending Measures

• Education costs depend on a variety of factors outside of school district control; it would not be fair or appropriate to compare all of the school districts in Texas to one another.

• Instead, FAST evaluates each district and campus against those identified as “fiscal peers,” districts and campuses that operate in a similar cost environment, are of similar size and serve similar students.

• An innovative grouping methodology called “propensity-score matching” was used to identify up to 40 fiscal peers for each campus and district in Texas.
Spending Measures

• A district’s fiscal peers are other districts that are most similar with respect to the common determinants of school district cost — labor costs, school district size and student demographics.

• Once district or campus fiscal peers are determined, a spending index score is assigned.

• The spending index is a measure of a district’s or campus’s spending relative to its set of fiscal peers.

• Averaged over three years.
District Cost Factors

• Input Prices
  – Comparable Wage Index
  – High School Comparable Wage Index

• School District Size
  – Enrollment
  – Square Miles

• Student Need
  – Percent Limited English Proficient
  – Percent Economically Disadvantaged
  – Percent High Needs Special Education
  – Percent Other Special Education
Academic Measures

- FAST web tool shows standard academic measures, such as TAKS passing and commended rates, graduation rates, etc.
- FAST also includes measures of student progress in math and reading, along with a composite measure that combines math and reading progress.
- Academic progress for a campus or district is relative to all other campuses or districts in the state.
- The methodology used to develop these measures is a version of what is often referred to as a “value-added” methodology.
Academic Measures

- The academic progress measures are based on annual student academic progress averaged over three years.

- These academic progress measures control for various demographic factors that can influence student performance, such as economic disadvantage, limited English proficiency, etc.

- Controlling for these factors ensures that districts and campuses are evaluated based on what they contribute to academic growth.
DISTRIBUTION MODEL

The district model uses the same structure for the student level, but without terms for campuses. Thus, student-level notation is the same as in the campus model without the “j” terms:

The district level is:

\[ Y_{ik} = \pi_{0k} + \sum_{p=1}^{P} \pi_{pk} a_{pk} + e_{ik}, \]

\[ \pi_{0k} = \gamma_{00} + \mu_{0k}, \]

\[ \pi_{lk} = \gamma_{l0}, \quad l = 1, \ldots, P \]

\[ p = 1, \ldots, 34 \text{ student-level variables} \]

\[ Y_{ijk} = \text{student TAKS reading or math score} \]

\[ \pi_{pk} = \text{student-level coefficients} \]

\[ a_{pk} = \text{student-level control variables} \]

\[ e_{ijk} = \text{student-level random error, with } e_{ijk} \sim \text{N}(0; \sigma^2) \]

\[ \gamma_{00} = \text{non-randomly varying intercept} \]

\[ \gamma_{l0} = \text{non-randomly varying intercepts for student covariates} \]

\[ \mu_{0k} = \text{district-level random effect, with } \mu_{0k} \sim \text{N}(0; \tau^2) \]

Source:
Based on the Dallas ISD model, and with advice of the technical review team and other stakeholders, the following student-level control variables were included:

\[ a_1 = \text{Math pre-test score} \]
\[ a_2 = \text{Math pre-test score squared} \]
\[ a_3 = \text{Reading pre-test score} \]
\[ a_4 = \text{Reading pre-test score squared} \]
\[ a_5 = \text{African American (1 if African American)} \]
\[ a_6 = \text{Hispanic (1 if Hispanic)} \]
\[ a_7 = \text{Limited English Proficient (1 if LEP)} \]
\[ a_8 = \text{Gender (1 if Male)} \]
\[ a_9 = \text{Free or Reduced Lunch (1 if on Free or Reduced-Price Lunch)} \]
\[ a_{10} = \text{African American x LEP} \]
\[ a_{11} = \text{Hispanic x LEP} \]
\[ a_{12} = \text{African American x Gender} \]
\[ a_{13} = \text{Hispanic x Gender} \]
\[ a_{14} = \text{African American x Free or Reduced-Price Lunch} \]
\[ a_{15} = \text{Hispanic x Free or Reduced-Price Lunch} \]
\[ a_{16} = \text{LEP x Free or Reduced-Price Lunch} \]
\[ a_{17} = \text{Gender x Free or Reduced-Price Lunch} \]
\[ a_{18} = \text{African American x Gender x Free or Reduced-Price Lunch} \]
\[ a_{19} = \text{Hispanic x Gender x Free or Reduced-Price Lunch} \]
\[ a_{20} = \text{LEP x Gender x Free or Reduced-Price Lunch} \]
\[ a_{21} = \text{Spanish-language test current, grades 4-6 (1 if Spanish TAKS)} \]
\[ a_{22} = \text{Spanish-language test prior-year reading, grades 4-6 (1 if Spanish TAKS)} \]
\[ a_{23} = \text{Spanish-language test prior-year math, grades 4-6 (1 if Spanish TAKS)} \]
\[ a_{24} = \text{Spanish-language test prior-year reading, grades 4-6 x Reading pre-test score} \]
\[ a_{25} = \text{Spanish-language test prior-year math, grades 4-6 x Math pre-test score} \]
\[ a_{26} = \text{Gifted class (1 if Gifted)} \]
\[ a_{27} = \text{Special education class (1 if Special Education)} \]
\[ a_{28-34} = \text{Grade binaries for grades 5 – 11 (reference grade is 4)} \]

Source:
FAST Ratings

• Composite academic progress measure is paired with the spending index, identifying districts that appear to achieve the most academic progress while spending less than fiscal peers.

• Combines the academic progress quintile with the spending index quintile.

• Result is a FAST rating, ranging from one to five stars.
# FAST Ratings

## Academic Progress Percentiles + Spending Index = FAST Ratings

<table>
<thead>
<tr>
<th>Composite</th>
<th>Academic Progress</th>
<th>Percentile</th>
<th>Less Than 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td></td>
<td>-</td>
<td>10-19</td>
</tr>
<tr>
<td>60-79</td>
<td>-</td>
<td>20-39</td>
<td>-</td>
</tr>
<tr>
<td>80-99</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**SPENDING INDEX**

<table>
<thead>
<tr>
<th>“VERY HIGH”</th>
<th>“HIGH”</th>
<th>“AVERAGE”</th>
<th>“LOW”</th>
<th>“VERY LOW”</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 STARS</td>
<td>3½ STARS</td>
<td>4 STARS</td>
<td>4½ STARS</td>
<td>5 STARS</td>
</tr>
<tr>
<td>2½ STARS</td>
<td>3 STARS</td>
<td>3½ STARS</td>
<td>4 STARS</td>
<td>4½ STARS</td>
</tr>
<tr>
<td>2 STARS</td>
<td>2½ STARS</td>
<td>3 STARS</td>
<td>3½ STARS</td>
<td>4 STARS</td>
</tr>
<tr>
<td>1½ STARS</td>
<td>2 STARS</td>
<td>2½ STARS</td>
<td>3 STARS</td>
<td>3½ STARS</td>
</tr>
<tr>
<td>1 STAR</td>
<td>1½ STARS</td>
<td>2 STARS</td>
<td>2½ STARS</td>
<td>3 STARS</td>
</tr>
</tbody>
</table>

Note: The table above shows the FAST Ratings based on the composite, academic progress, and percentile scores. The spending index ranges from “VERY HIGH” to “VERY LOW.” The ratings are indicated by stars with varying numbers denoting the level of achievement.
Web Tool

Amarillo ISD

**FAST Rating**  
🌟🌟🌟🌟🌟

- **Total Enrollment**: 32,445
- **Composite Academic Progress Percentile**: 45
  - as much or more progress than 45% of Texas school districts
- **Reading Progress Percentile**: 26
  - as much or more progress than 26% of Texas school districts
- **Math Progress Percentile**: 62
  - as much or more progress than 62% of Texas school districts
- **Cost Adjusted Spending Per Pupil**: $8,327
- **Spending Index**: High
- **2010-11 Accountability Rating**: Academically Acceptable
- **TAKS - Passing All Tests**: 77%

**TAKS (all tests)**

- **Passing (all tests)**: 77%
- **Commended (all tests)**: 16%

**Progress Percentile**

- **Composite Academic Progress**: 45
- **Reading Progress**: 28
- **Math Progress**: 62

**Spending**

- **Spending index**: High

Amarillo ISD with Comparable Districts

Mouse over the dots to display each district name, numerical spending index level and academic progress score.

Channelview ISD
10, 71

**Show FAST Peers by Star Rating:**
Financial Allocation Study for Texas

The Comptroller’s Financial Allocation Study for Texas (FAST) is intended to identify school districts and campuses that combine high academic achievement with cost-effective operations. Texas has more than a thousand school districts of vastly different sizes, with different student populations and facing different challenges. Many factors affecting academic achievement are beyond our schools’ control, including geography, demography, economies of scale and others.

It would be all but impossible, for instance, to develop a simple measure of efficiency and effectiveness that could compare Divide ISD in the Western Hill Country, with its 24 students, against Austin ISD and its 85,000 students.

The Comptroller’s office has attempted to take these broad differences into account. The success of a school district or campus cannot and should not be ranked by a single measure. This website allows the use of “multiple lenses” to compare districts and schools across a range of measures.

In examining FAST data, the user should keep these factors in mind. Given the number and variety of the factors affecting student performance, certain comparisons may be misleading and may not yield meaningful conclusions.

JavaScript must be enabled to use this application.

I have read and understand the information above.
Products

- Report released in 2010 had five parts:
  - Part 1: Executive Summary
  - Part 2: District and Campus Listings
  - Part 3: Smart Practices
  - Part 4: Cost Efficiencies in Higher Education
  - Part 5: Appendix, including technical details of methodology
- All five parts are available online at [www.FASTexas.org](http://www.FASTexas.org)
- District and campus listings are updated every year with new FAST ratings.
• House Bill 3 charged the Texas Comptroller with “identify[ing] potential areas for district and campus improvement.” To accomplish this task, the Comptroller’s research team:
  – identified strongly performing districts based on preliminary results and contacted each of these districts;
  – contacted other districts showing low spending relative to their fiscal peers or strong academic performance; and
  – consulted experts in the field – superintendents, school board members, staff at regional education service centers, stakeholder associations and others with knowledge of effective school district practices – who identified other school districts that might offer additional “smart practice” ideas.

• The team asked the various districts to describe the strategies and programs they credit as contributing to their success.
The research team sought school district practices that meet one or more of the following criteria:

- has proven to be an effective practice for containing, reducing or avoiding costs;
- improves the efficiency and effectiveness of educational program delivery, including demonstrated improvement in student performance;
- is estimated to produce a significant long-term return on investment for the district;
- has significantly increased purchasing power though the use of purchasing partnerships;
- has realized efficiencies through the use of shared services arrangements with other districts; and/or
- can be implemented by other districts.
• Available on the FAST website and in print, and updated as new smart practices are added; this section of the report is intended to serve as a guide to other Texas school districts interested in improving the effectiveness of their operations and educational programs.

• The smart practices fall into four broad categories:
  1. Instruction and Staffing
  2. Financial Management and Technology Solutions
  3. Purchasing and Student Services
  4. Facilities
Interpreting FAST

- Districts are ranked relative to other districts and not on an absolute scale.
- For academic progress, districts are measured against all other districts in Texas.
- A district’s Spending Index is relative only to that district’s unique set of fiscal peers.
- A district’s FAST rating simply averages its Composite Academic Progress score and its Spending Index.
- Districts are *not* measured against any absolute standard of performance or efficiency.
- FAST does not analyze how districts spend their money.