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Texas Comptroller
of Public Accounts

FAST

Financial Allocation Study for Texas 2010

Connecting the Dots: School Spending and Student Progress

Appendix:
Background, Methodology and Expanded Data for Recommendations

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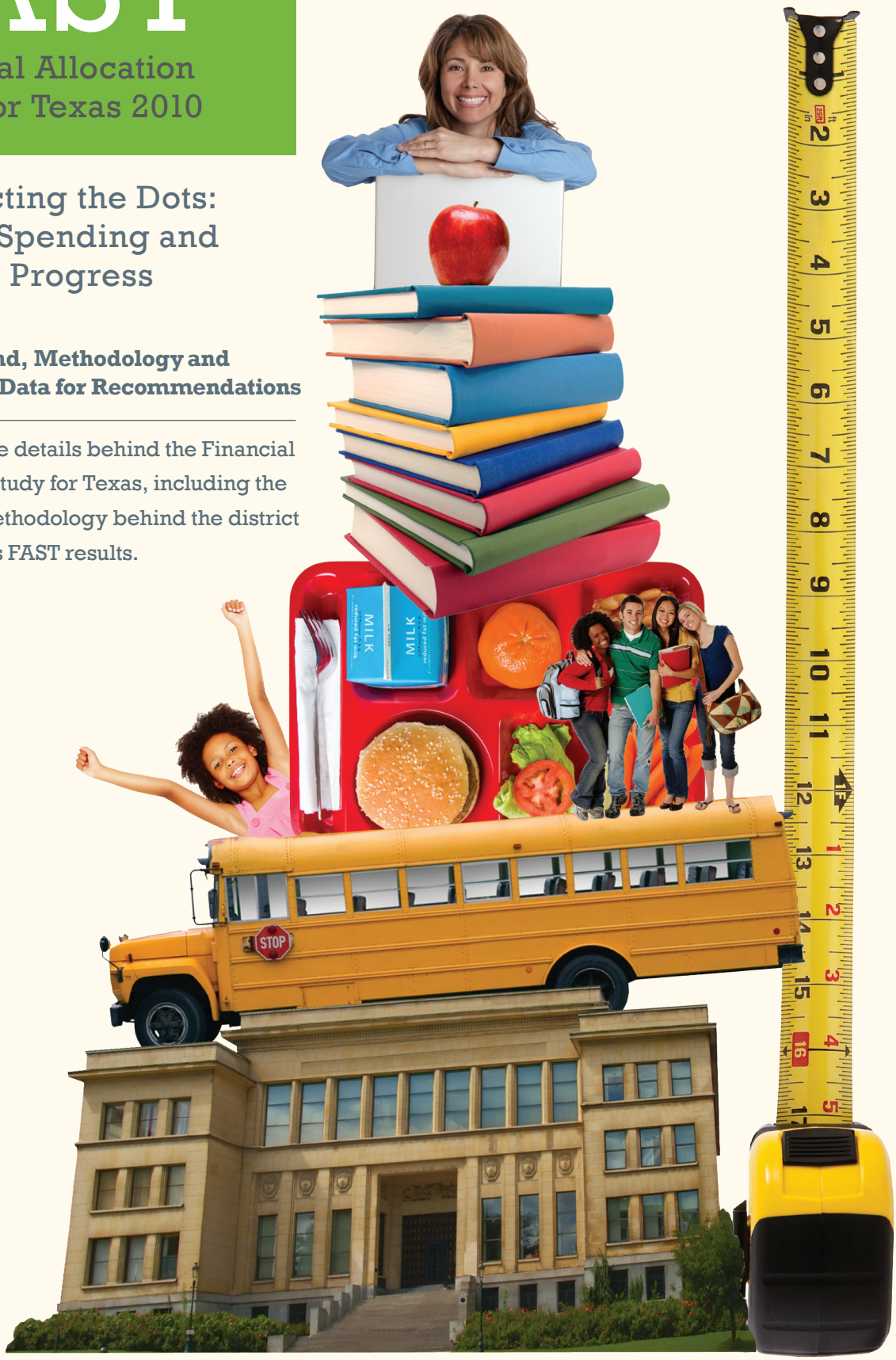
Get all of the details behind the Financial Allocation Study for Texas, including the in-depth methodology behind the district and campus FAST results.



FAST

Financial Allocation Study for Texas

APPENDIX: BACKGROUND, METHODOLOGY AND EXPANDED DATA FOR RECOMMENDATIONS

This is the Appendix of the Financial Allocation Study for Texas (FAST) report. The complete version is available online at **www.FASTexas.org**.

View the FAST report's other sections online, including:

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I. INTRODUCTION

This appendix provides additional context to the findings and results of the FAST report.

To relate academic growth to levels of student achievement, FAST researchers added a progress measure that complements current Texas Education Agency (TEA) data. TEA provides measures of student performance for accountability purposes, by demonstrating whether districts and campuses provide students with basic skills and knowledge at each stage of schooling.

Standard accountability measures do not, however, take into account factors beyond a district's control that may affect academic performance.

The FAST measures of academic progress track *student gains over time*, controlling for various student characteristics that research has demonstrated affect academic performance. These controls level the playing field for each student, campus and district to ensure valid statewide comparisons.

This appendix provides an analysis of statewide expenditure trends and an explanation of important financial indicators and costs per pupil in various school program areas. To provide an understanding of the environment in which school funding decisions are made, a basic summary of Texas' current school finance system is included as well.

This appendix also discusses certain *mandates*, or laws that require school districts to implement specific programs or meet certain standards. Some mandates can increase district costs without providing financial support. As part of the FAST project, the Comptroller's office asked districts to identify any policies, practices or legislation that impede their progress or are, effectively, unfunded or underfunded mandates.

In comparing spending among districts and campuses, it is important to remember that they operate in varying cost environments. The cost of education in any school district is a function of enrollment; outcomes produced; the prices of inputs (supplies, equipment, transportation, etc.); the characteristics of students and parents; and other features such as a district's geographic size.

Schools that operate in areas with a high cost of living, for instance, generally face higher costs, as do those serving more challenging student bodies. Large school districts can rely on economies of scale to reduce their per-pupil education costs much more than can small districts. For this report, the FAST team used existing financial indicators to create new cost measures and developed methods to determine appropriate "peer" districts and campuses — those appropriate for comparisons — for each district and campus in the state.

The appendix closes with a list of recommendations. Through a careful review of district practices, staff research and conversations with education experts and stakeholders, the Comptroller developed these recommendations for consideration by the Texas Legislature, Texas Education Agency and school districts. Some could lead to financial savings, others to more effective academic programs — and still others may prompt further study.

II. ACADEMIC MEASURES AND TRENDS

Texas' student assessment data, such as Texas Assessment of Knowledge and Skills (TAKS) scores, measure district and campus quality based on the percentage of students who meet or exceed certain minimum standards. The federal No Child Left Behind Act uses a similar approach, employing TAKS test scores to categorize Texas campuses and districts as "Meeting Adequate Yearly Progress (AYP)" or "Not Meeting AYP." Such evaluations hold schools accountable for student test performance at a single point in time, but do not measure *gains* in student achievement over time.

To relate such academic growth to static assessments of student achievement, FAST researchers added a *progress measure* that complements current TEA data. The FAST progress measure highlights student gains over time, controlling for various student characteristics including socioeconomic status. These controls level the playing field for each student, campus and district to allow for valid statewide comparisons. The measures thus provide a more robust, comprehensive picture of district effectiveness in improving student performance. (See **Technical Appendix 1** for a discussion of the methods used to measure academic progress.)

Because no single measure should be used to evaluate student achievement or school quality, both TEA's existing achievement measures and the FAST progress measures are used in this report and the FAST Web tool.

The FAST Web tool allows users to review TEA ratings and statistics as well as the new FAST indicators. Users can generate reports, view extensive data sets and download the results.

EXISTING ACHIEVEMENT MEASURES

Since 2003, Texas has used TAKS to test students in Grades 3 through 11. The TAKS program was specifically designed to assess students' mastery of the Texas Essential Knowledge and Skills, the state's standard curriculum.

TAKS assesses reading at Grades 3 through 9; English language arts in Grades 10 and 11; writing in Grades 4 and 7; science in Grades 5, 8, 10 and 11; and social studies in Grades 8, 10 and 11. Spanish-language versions of the TAKS tests are available at Grades 3 through 6.

Other TAKS tests serve special populations:

- *TAKS Accommodated* is a general assessment available to students in special education programs. It includes format changes such as larger fonts and fewer items per page.
- *TAKS–Alternate* (TAKS-Alt) assesses students with significant cognitive disabilities and is based on alternate academic achievement standards.
- *TAKS–Modified* (TAKS-M) is an alternate assessment based on modified standards designed for students who receive modified instruction in the Texas Essential Knowledge and Skills.

Beginning in the 2011-12 school year, TAKS will be replaced by the State of Texas Assessment of Academic Readiness (STAAR). According to TEA, STAAR will be used for 12 end-of-course assessments required by 2007's S.B. 1031 and new Grade 3-8 assessments mandated by 2009's H.B. 3.

Students in the graduating class of 2015, who are currently in eighth grade, will be the first students who must meet the new end-of-course testing requirements to earn a diploma.[1]

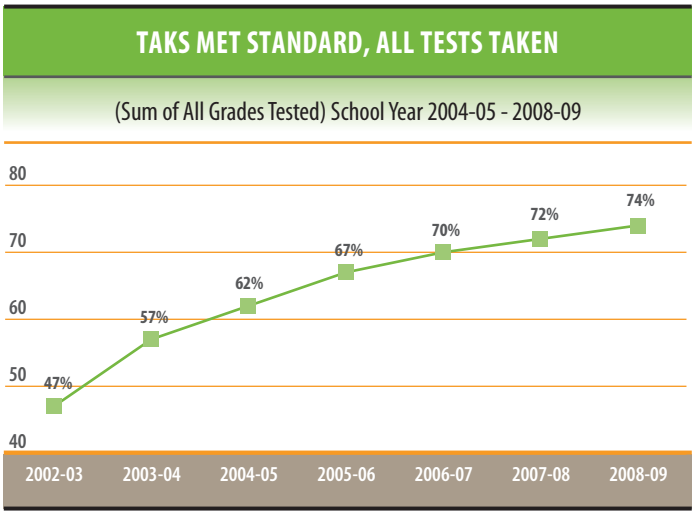
In November 2002, the State Board of Education (SBOE) adopted TAKS passing standards. TAKS performance was grouped into three categories:

- Did Not Meet the Standard
- Met the Standard
- Commended Performance

The "Met the Standard" level represents the TAKS passing standard in each grade level and subject area.[2] During the 2008-09 school year, 74 percent of all students in Grades 3 through 11 combined passed all of the TAKS subject-area tests (**Exhibit 1**).[3]

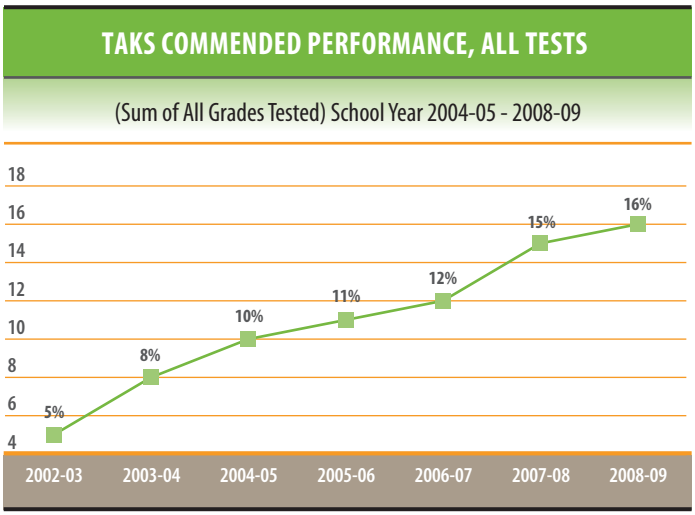
The "Commended Performance" measure is the highest performance level on TAKS, indicating that students have a thorough understanding of the academic skills taught at their grade level. In 2009, 16 percent of all students in Grades 3 through 11 achieved Commended Performance on each of the subject-area tests (**Exhibit 2**).[4]

EXHIBIT 1



Source: Texas Education Agency.

EXHIBIT 2



Source: Texas Education Agency.

FEDERAL AND STATE PERFORMANCE RATINGS

The 1993 Texas Legislature required SBOE to rate the performance of campuses and school districts through a public school accountability system.[5] State law also stipulates that student performance data be reported by subgroups such as ethnicity and socioeconomic status, and deems that school and district performance is not acceptable unless the performance of all of these subgroups is acceptable.

DISTRICT AND CAMPUS TYPES

Texas school districts and campuses are remarkably diverse in terms of size and the populations they serve. In the 2008-09 school year, Texas had 1,030 independent public school districts and 205 charter school operators, ranging in enrollment from 16 to nearly 200,000. The state's 8,322 public schools range in enrollment from fewer than 10 students to more than 4,500.

DISTRICTS

The Texas Education Agency categorizes districts according to the type of communities in which they are located. This report employs TEA's definitions for this project because these are the labels familiar to district officials (**Exhibit 3**).

EXHIBIT 3

TEXAS EDUCATION AGENCY DEFINITIONS FOR DISTRICT TYPE

DISTRICT TYPE	DEFINITION
MAJOR URBAN	A district is classified as major urban if it is located in a county with a population of at least 735,000; its enrollment is the largest in the county or equal to at least 75 percent of the largest district enrollment in the county; and at least 35 percent of its enrolled students are economically disadvantaged.
MAJOR SUBURBAN	A district is classified as major suburban if it does not meet the criteria for classification as major urban; is contiguous to a major urban district; and its enrollment is at least 3 percent that of the contiguous major urban district or at least 4,500 students. A district also is classified as major suburban if it does not meet the criteria for classification as major urban; is not contiguous to a major urban district; is located in the same county as a major urban district; and its enrollment is at least 15 percent that of the nearest major urban district in the county or at least 4,500 students.
OTHER CENTRAL CITY	A district is classified as other central city if it does not meet the criteria for classification in either of the previous subcategories; is not contiguous to a major urban district; is located in a county with a population of between 100,000 and 734,999; and its enrollment is the largest in the county or at least 75 percent of the largest district enrollment in the county.
OTHER CENTRAL-CITY SUBURBAN	A district is classified as other central city suburban if: it does not meet the criteria for classification in any of the previous subcategories; is located in a county with a population of between 100,000 and 734,999; and its enrollment is at least 15 percent of the largest district enrollment in the county. A district also is other central city suburban if it does not meet the criteria for classification in any of the previous subcategories; is contiguous to another central city district; its enrollment is greater than 3 percent that of the contiguous other central city district; and its enrollment exceeds the median district enrollment of the state.
INDEPENDENT TOWN	A district is classified as independent town if it does not meet the criteria for classification in any of the previous subcategories; is located in a county with a population of 25,000 to 99,999; and its enrollment is the largest in the county or greater than 75 percent of the largest district enrollment in the county.
NON-METROPOLITAN: FAST GROWING	A district is classified as non-metropolitan, fast growing if it does not meet the criteria for classification in any of the previous subcategories; has an enrollment of at least 300 students; and its enrollment has increased by at least 20 percent over the past five years.
NON-METROPOLITAN: STABLE	A district is classified as non-metropolitan, stable if it does not meet the criteria for classification in any of the previous subcategories and its enrollment exceeds the median district enrollment for the state.
RURAL	A district is classified as rural if it does not meet the criteria for classification in any of the previous subcategories. A rural district has either an enrollment of between 300 and the median district enrollment for the state, and an enrollment growth rate over the past five years of less than 20 percent; or an enrollment of fewer than 300 students.

DISTRICT TYPE	DEFINITION
CHARTERS	Charter operators are open-enrollment school districts chartered by the State Board of Education. Established by the Texas Legislature in 1995 to promote local initiative, charter school districts are subject to fewer regulations than other public school districts. Generally, charter school districts are subject to laws and rules that ensure fiscal and academic accountability but do not unduly regulate instructional methods or pedagogical innovation. Like other public school districts, charter school districts are monitored and accredited under the statewide testing and accountability system. [6]

Source: Texas Education Agency.

While only 88 Texas school districts are identified as major urban or major suburban — 7.1 percent of the total — they educate more than half the state's students (51.8 percent). Conversely, the 678 rural and non-metropolitan districts — 54.9 percent of the total — educate just 11.3 percent of the state's students (**Exhibit 4**).[7]

EXHIBIT 4

ENROLLMENT BY TEXAS SCHOOL DISTRICT TYPE, 2008-09 SCHOOL YEAR

DISTRICT TYPE	DISTRICTS		CAMPUSES		STUDENTS	
	TOTAL	%	TOTAL	%	TOTAL	%
MAJOR URBAN	10	0.8%	1,293	15.5%	893,994	18.9%
MAJOR SUBURBAN	78	6.3	1,914	23.0	1,555,398	32.9
OTHER CENTRAL CITY	39	3.2	1,087	13.1	734,173	15.5
OTHER CENTRAL-CITY SUBURBAN	154	12.5	1,144	13.7	648,475	13.7
INDEPENDENT TOWN	71	5.7	504	6.1	261,435	5.5
NON METROPOLITAN: FAST GROWING	24	1.9	111	1.3	56,579	1.2
NON METROPOLITAN: STABLE	227	18.4	963	11.6	333,686	7.1
RURAL	427	34.6	869	10.4	141,973	3.0
CHARTERS	205	16.6	437	5.3	102,491	2.2
STATEWIDE	1,235	100.0%	8,322	100.0%	4,728,204	100.0%

Source: Texas Education Agency.

In 2008-09, Texas' school districts ranged in enrollment from 16 students in Divide ISD to 199,524 students in Houston ISD (**Exhibits 5 and 6**).

EXHIBIT 5

LARGEST TEXAS INDEPENDENT SCHOOL DISTRICTS, 2008-09 SCHOOL YEAR

DISTRICT	COUNTY	TOTAL DISTRICT ENROLLMENT
HOUSTON ISD	Harris	199,524
DALLAS ISD	Dallas	157,174
CYPRESS-FAIRBANKS ISD	Harris	100,505
NORTHSIDE ISD	Bexar	88,201
AUSTIN ISD	Travis	83,033
FORT WORTH ISD	Tarrant	79,114

DISTRICT	COUNTY	TOTAL DISTRICT ENROLLMENT
FORT BEND ISD	Fort Bend	68,507
NORTH EAST ISD	Bexar	63,189
ARLINGTON ISD	Tarrant	62,953
EL PASO ISD	El Paso	62,071

Source: Texas Education Agency.

EXHIBIT 6

SMALLEST TEXAS INDEPENDENT SCHOOL DISTRICTS, 2008-09 SCHOOL YEAR

DISTRICT	COUNTY	TOTAL DISTRICT ENROLLMENT
DIVIDE ISD	Kerr	16
DOSS CONSOLIDATED CSD	Gillespie	25
GRANDVIEW-HOPKINS ISD	Gray	27
SAN VICENTE ISD	Brewster	33
RAMIREZ ISD	Duval	38
WESTHOFF ISD	Dewitt	41
THREE WAY ISD	Erath	43
MARATHON ISD	Brewster	47
VALENTINE ISD	Jeff Davis	51
STAR ISD	Mills	64

Source: Texas Education Agency.

CAMPUSES

In 2008-09, about 50 percent of Texas' students were enrolled in elementary school; 21 percent were in middle school; 27 percent were in secondary school; and 2 percent were in a school combining elementary and secondary education (**Exhibit 7**).[8]

EXHIBIT 7

ENROLLMENT IN TEXAS PUBLIC SCHOOLS BY SCHOOL TYPE, 2008-09 SCHOOL YEAR

	CAMPUSES	ENROLLMENT	PERCENT OF TOTAL ENROLLMENT
ELEMENTARY SCHOOL	4,460	2,366,863	50.1%
MIDDLE SCHOOL	1,661	1,004,988	21.3
SECONDARY SCHOOL	1,721	1,266,505	26.8
COMBINED ELEMENTARY AND SECONDARY SCHOOL	480	89,848	1.9
TOTAL	8,322	4,728,204	100%

Source: Texas Education Agency.

Campus enrollments in Texas vary by type. While they are more numerous and serve more grade levels, elementary schools generally are smaller than middle or secondary schools. Combined elementary and secondary schools have the lowest average enrollments of any campus type.

Elementary schools typically serve students in kindergarten through fifth grade. Some also provide pre-kindergarten and early education, and some designated as elementary schools serve pre-kindergarten and early education students exclusively. On average, Texas

elementary schools served 530 students in 2008-09. Actual enrollments ranged from fewer than 10 at schools with special populations, alternative education programs and public charters to 2,086 at Young Learners, a Houston ISD pre-kindergarten center. Westhoff Elementary School in Westhoff ISD, with an enrollment of 41, was the smallest non-alternative elementary school with a FAST rating in the 2008-09 school year. The Jane A. Hambric School in Socorro ISD, with an enrollment of 1,555, was the state's largest elementary school with a FAST rating.

Middle schools typically serve students in sixth through eighth grade; some also offer ninth grade. Texas middle schools served an average of 605 students each in 2008-09. As with elementary schools, however, enrollments varied widely, from fewer than 10 at schools with special populations, alternative education programs and public charters to 2,100 at McCullough Junior High School in Conroe ISD. Bay Area Charter Middle School in Harris County, with 31 students, was the smallest non-alternative middle school with a FAST rating in the 2008-09 school year.

Secondary schools typically serve students in ninth through 12th grade. Texas secondary schools served an average of 735 students each in 2008-09. Enrollments ranged from fewer than 10 at schools with special populations, alternative education programs and public charters to 4,572 at Skyline High School in Dallas ISD. Big Bend High School in Terlingua CSD, with 40 students, was the smallest non-alternative secondary school with a FAST rating in 2008-09.

Combined elementary and secondary schools serve students in kindergarten through 12th grade. These are typically charters, alternative education programs or specialized programs, or serve small communities. Texas' combined elementary and secondary schools served an average of 187 students each in 2008-09. Actual enrollments ranged from fewer than 10 at schools with special populations and alternative education programs to 1,496 at Eagle Advantage Schools, a Dallas County charter school. Prairie Valley High School in Montague County, with 64 students, was the smallest non-alternative combined elementary and secondary school with a FAST rating in the 2008-09 school year.[9]

The accountability ratings — Exemplary, Recognized, Academically Acceptable and Academically Unacceptable — are based on a set of academic excellence indicators that vary from year to year.[10]

FEDERAL ACCOUNTABILITY STANDARDS

The federal No Child Left Behind (NCLB) Act of 2001 was intended to hold schools accountable for ensuring that all students achieve mastery in reading and math, with a particular focus on groups that have not performed well traditionally. Under the provisions of NCLB, school accountability for student progress is measured using indicators of Adequate Yearly Progress, a rating including measures of academic performance and school completion rates.

In Texas, TAKS performance and graduation rates (for high schools and districts) and attendance rates (for elementary and middle/junior high schools) are used to determine whether campuses, districts and the state meet AYP criteria.[11]

In response to NCLB's requirement for an AYP measure, TEA developed the Texas Projection Measure (TPM), which predicts individual student achievement on TAKS from the current year to the next benchmark year. The TPM uses current TAKS scores to predict whether or not a student will pass future TAKS tests.[12]

The FAST model may appear to be similar to TPM. The TPM, however, projects future test scores, while the Comptroller's model seeks to measure *actual* annual growth in student achievement. For more on TPM, please see the sidebar on page 41.

COLLEGE AND WORK FORCE READINESS MEASURES

In addition to AYP measures, TEA closely monitors school districts' ability to produce graduates who are ready to enter college or the work force.

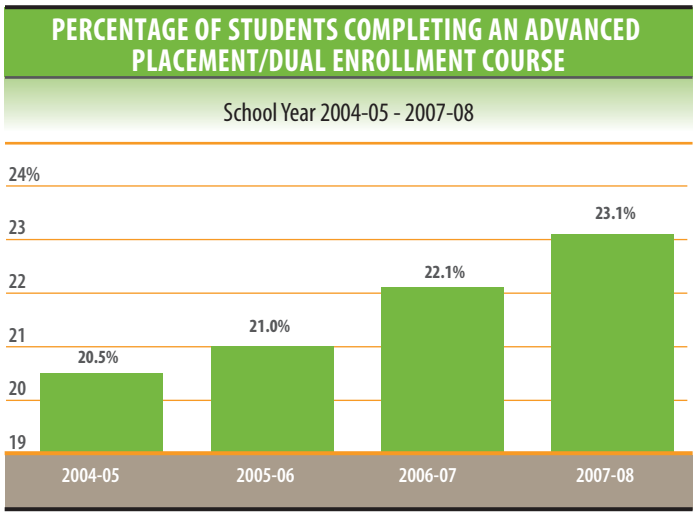
TEA has several measures of college readiness, including:

- share of students completing advanced/dual enrollment courses;
- share of students meeting the standard on the Texas Success Initiative (TSI) higher education readiness component;
- share of students completing a Recommended High School Graduation Program or Distinguished Achievement Graduation Program (RHSP/DAP graduates);
- share of students scoring above criterion on advanced

placement (AP) and International Baccalaureate (IB) tests;
- SAT and ACT results; and
- share of college-ready graduates, which are students showing college readiness on exit-level TAKS or college admissions tests.

The *advanced placement/dual enrollment measure* reflects a district's share of students in Grades 9 through 12 who complete at least one AP or IB course, one dual-enrollment course (offering both high school and college credit) or other courses designated by the district as academically advanced.[13] In 2007-08 (most recent data available), 23.1 percent of Texas students in Grades 9 through 12 completed at least one advanced course, up from 22.1 percent in the previous school year (**Exhibit 8**).[14]

EXHIBIT 8



Source: Texas Education Agency.

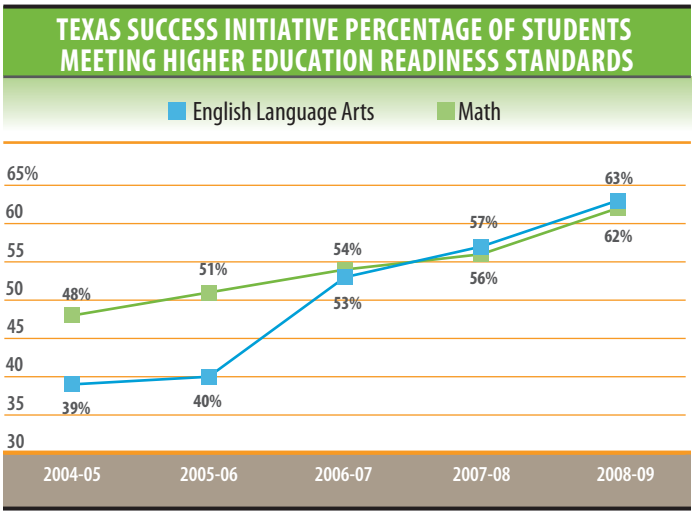
The *TSI measure* represents the percentage of students who meet the Higher Education Readiness Component standards of 2200 on the exit-level English and math TAKS. This indicator is used to assess student readiness to enroll in an institution of higher education without the need for remedial classes.[15]

The Texas Success Initiative (TSI) is a program designed to improve student success in college. It requires students to be assessed in reading, writing and mathematics skills prior to enrolling in college, and to be advised based on the results of that assessment. The assessments available for students to take are the ASSET or COMPASS tests offered by ACT; ACCUPLACER, offered by the College Board; or the Texas Higher Education Assessment (THEA). Individual universities decide which tests they accept and what the cut-off scores will be.

Students do not to have to take a TSI test if they have a high enough score on their exit-level TAKS tests in mathematics and English language arts. The qualifying scores are scale scores of 2200 on TAKS mathematics and English language arts, with a written composition score of 3 or higher on the writing component.[16]

In 2009, 63 percent of Texas' Grade 11 students achieved the college readiness standard in English, an increase of 6 percentage points from 2008. In mathematics, 62 percent of Grade 11 students met the standard, a rise of 6 percentage points from 2008 (**Exhibit 9**).

EXHIBIT 9



Source: Texas Education Agency.

The *RHSP/DAP graduates indicator* is the share of district graduates who have satisfied the course requirements for SBOE's Recommended High School Program or Distinguished Achievement Program.

Performance results for AP and IB examinations indicate the share of high school students who score above a "criterion" level on these examinations and receive advanced placement, course credit or both upon entering college. In 2008, 50.1 percent of examinees had at least one score at or above criterion, down slightly (0.4 percent) from the previous school year.[17]

Performance and participation on college admissions test includes results on the SAT, published by the College Board; or the ACT, published by ACT, Inc.

EXHIBIT 10

TEST REQUIREMENTS FOR COLLEGE-READY GRADUATES

SUBJECT	EXIT-LEVEL TAKS		SAT		ACT
ENGLISH LANGUAGE ARTS (ELA)	>= 2200 scale score on ELA test AND a "3" or higher on essay	OR	>=500 ON CRITICAL READING AND >=1070 TOTAL	OR	>= 19 ON ENGLISH AND >= 23 COMPOSITE
MATH	>= 2200 scale score on mathematics test	OR	>=500 on Math AND >=1070 Total	OR	>= 19 on Math AND >= 23 Composite

Source: Texas Education Agency.

College-Ready Graduates includes results on the exit-level TAKS, the SAT or the ACT. TEA's criteria for college-readiness on these tests are described in **Exhibit 10**.

According to the College Board, the SAT is a measure of the critical thinking, mathematical reasoning and writing skills college students need to be successful in college. Scores on each of the sections range from 200 to 800. ACT, Inc. reports that the ACT measures general educational development in English, mathematics, reading and science. Scores on each section range from 1 to 36. Examinees also receive a composite score, calculated as the average of the four section scores.[18]

On average, every major ethnic group in the class of 2010 except Anglo students increased its SAT scores on either two parts of the exam or all three. Students who classify themselves as Mexican American raised their average critical reading and mathematics scores by five points each and their writing score by three points.[19] Of the class of 2010, 92,615 Texas seniors took the ACT, a 12 percent increase from the previous year. These students earned the highest mathematics and science scores posted on the ACT in Texas in the past ten years.[20]

STUDENT DROPOUT AND COMPLETION RATES

Annual dropout rates and longitudinal completion rates also play an important role in the Texas accountability ratings.

TEA's annual dropout rate measures the share of students who drop out of school during one school year. The completion rate and four-year dropout rate are both longitudinal measures. The *four-year dropout rate* shows the share of students from the same class who drop out before completing high school. Conversely, the completion rate reflects the percentage of students from a class of beginning ninth- or seventh-graders who complete their high school education by their anticipated graduation dates.

The 2003 Texas Legislature required TEA to compute the state's dropout rates according to the National Center for Education Statistics (NCES) dropout definition, beginning in the 2005-06 school year (**see sidebar on page 10**). As a result of this change, annual dropout rates for 2004-05 and prior school years are not comparable to those for 2005-06 and beyond.

Because the annual dropout rate only reports students who leave school in a single year, it may present an overly optimistic picture of the dropout situation in Texas. The longitudinal measures more accurately reflect the conventional definition of a dropout as someone who leaves school at any point prior to graduation. The four-year dropout rate in Texas fell from 11.4 percent for the class of 2007 to 10.5 percent for the class of 2008 (most recent data available). Out of 300,488 students in the class of 2008, 79.1 percent graduated, 8.9 percent continued in high school and 1.5 percent received a GED.[21]

TEA calculates two completion rates; Completion Rate I includes graduates and continuers (students who stay in school but have not graduated) while Completion Rate II includes graduates, continuers and GED recipients.

For the Class of 2008 (most recent data available from TEA), Completion Rate I was 88 percent and Completion II rate was 89.5 percent.[22] **Exhibit 11** highlights these measures for different student groups.

Taken together, the existing academic measures show snapshots of achievement representing progress accumulated over

EXHIBIT 11

LONGITUDINAL COMPLETION RATES (%), GRADES 9-12, BY STUDENT GROUP, TEXAS PUBLIC SCHOOLS, CLASS OF 2008

GROUP	COMPLETION I	COMPLETION II (W/ GED)	4 YEAR DROPOUT RATE
AFRICAN AMERICAN	82.8	83.9	16.1
ASIAN/PACIFIC ISLANDER	96.0	96.4	3.6
HISPANIC	84.1	85.6	14.4
NATIVE AMERICAN	89.4	91.6	8.4
WHITE	93.0	94.9	5.1
ECONOMICALLY DISADVANTAGED	82.7	84.3	15.7
STATE OF TEXAS	88.0	89.5	10.5

Source: Texas Education Agency.

a student's educational career. To evaluate resource allocation, however, prior achievement must be distinguished from *current* academic progress.

To examine the connection between school resource allocation and student achievement, FAST researchers added progress measures to supplement current student achievement data. The FAST progress measures provide a robust, comprehensive picture of academic effectiveness.

FAST ACADEMIC PROGRESS MEASURES

As a result of a thorough development and review process (see **Part I: Executive Summary**), the FAST team produced methods to place Texas campuses and districts on a "level playing field" for comparisons of academic performance. Any such measure must weigh certain factors related to student academic performance that are beyond schools districts' control. The measures of academic growth used in this study control for several of these factors.

The FAST analysis uses a *value-added model* that measures achievement by controlling for the varying characteristics of students, campuses and districts to estimate how much a district or campus contributes to student learning. FAST reports measures of *annual progress in reading/English Language Arts and math*. The review team developed a *composite progress rating* by combining measures of math and reading progress.

Academic Progress percentiles represent math or reading growth relative to campuses or districts statewide, with adjustments for fair comparison that put all campuses or districts at the same starting line. These measures are presented as three-year averages of annual progress, to reduce volatility. Annual progress is calculated for each of the three years and then averaged. Scores are reported in percentiles ranging from zero to 99, with 50 as both mean and median.

Scores have the same interpretation as any percentile number. A campus Math Progress score of 60 means that during the last three school years, the campus's students showed as much

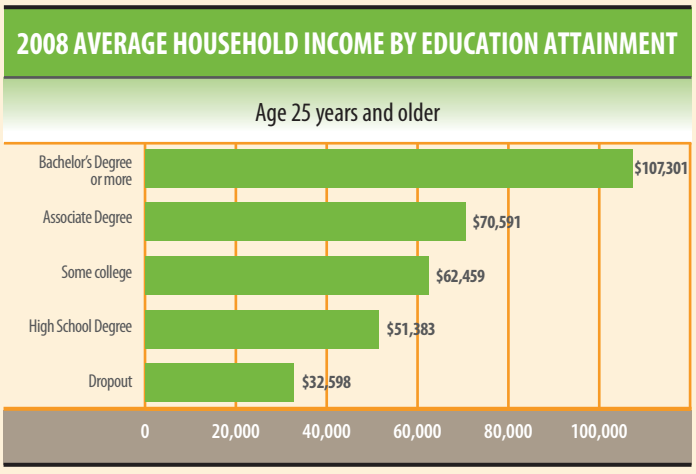
THE VALUE OF A HIGH SCHOOL DIPLOMA

In fall 2005, 353,465 Texas public school students entered the ninth grade. Nearly 29,000 members of this class had dropped out by spring 2009, never receiving a diploma — or the life advantages it brings.[23]

Money provides one of the most compelling personal motives for completing high school and pursuing further training or education. Those who graduate from high school have a much greater earning potential over a lifetime.

According to the U.S. Census Bureau, the 2008 average annual household income for high school dropouts aged 25 or older was $32,598, versus $51,383 for a high school graduate (**Exhibit 12**).[24]

EXHIBIT 12



Source: U.S. Census Bureau.

Texas workers with at least a high school diploma earn 38 percent more during their careers than workers who dropped out of school, and those with a bachelor's degree earn 79 percent more than those with a high school diploma only (**Exhibit 13**).[25]

According to data from the Texas Higher Education Coordinating Board, only 18.3 percent of seventh graders from 1995 had earned a post-secondary certification or diploma by 2006. For 1998's seventh graders, the numbers were even worse, with just 17.9 percent having earned a post-secondary award by 2009.

The effects of educational attainment extend well beyond personal earnings, however. Texas students are the state's future work force, and as such are critical to the state's continued economic growth. And since educated individuals earn higher incomes, their greater contribution to the tax base as well as their ability to purchase more goods and services ultimately benefit society. A recent study from the Texas A&M University Bush School of Government and Public Service estimated that students in the class of 2012 who drop out of school will cost Texas and its economy $6 billion to $10.7 billion over their lifetimes.[26]

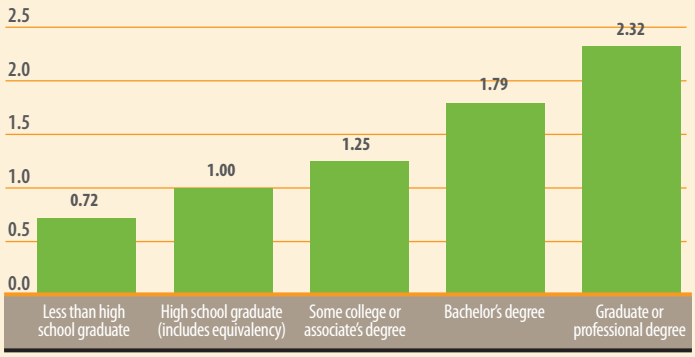
Dropouts also generate social costs in the form of increased demand for social services. They are more likely to be unemployed, live in poverty, receive social services and end up in prison than their counterparts with diplomas.

In 2008, the share of Texas dropouts living in poverty was twice as high as the rate for those with a high school diploma, at 26.3 percent versus 12.5 percent (**Exhibit 14**).[27]

EXHIBIT 13

EXPECTED LIFETIME EARNINGS RELATIVE TO TEXAS HIGH SCHOOL GRADUATES, BY EDUCATIONAL LEVEL

(Lifetime Earnings of a High School Graduate = 1.00)

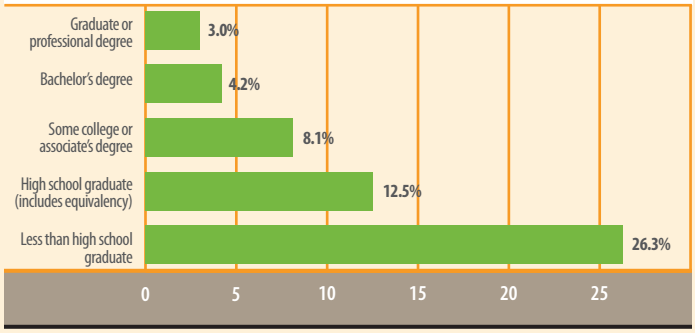


Source: U.S. Census Bureau, 2008 American Community Survey and Texas Comptroller of Public Accounts.

EXHIBIT 14

TEXAS 2008 POVERTY RATE BY EDUCATIONAL ATTAINMENT LEVEL

Age 25 years and older



Source: U.S. Census Bureau, 2008 American Community Survey.

Persons living in poverty are often uninsured and have an increased need for social services such as Medicaid. Census data indicate that in 2008, 45.9 percent of Texas dropouts had no health insurance coverage, compared to 29.5 percent for those with at least a high school diploma or its equivalent and just 9.8 percent for Texans with at least a bachelor's degree.[28]

A 2006 study conducted by Columbia University's Mailman School of Public Health concluded that Texas could save $12,533 in total lifetime health care costs for each additional high school graduate. According to this assessment, Texas would have saved about $1.6 billion if the 29,000 dropouts of the class of 2005-06 had graduated from high school.[29]

DEFINING DROPOUTS

Because the dropout rate is such a significant measure of child well-being and school performance, the methods used to measure it are both important and controversial.

A state's dropout rate can be calculated in numerous ways, and the use of these differing methods has prompted considerable confusion and criticism over the years. In the past, dropout rates published by the Texas Education Agency often were criticized for undercounting because they excluded some groups of students others considered to be dropouts, such as students who have completed all coursework requirements for a diploma but left school without passing the exit-level tests. These were counted as "other leavers"

instead of dropouts. Similarly, if two or more districts submitted dropout records for a single student and the accountable district could not be determined, the student was removed from the dropout count.

In response, the 2003 Legislature required TEA to begin computing dropout rates according to definitions provided by the National Center for Education Statistics (NCES). Under the NCES definition, a dropout is a student who is enrolled in public school in Grades 7-12; does not return to public school the following fall; is not expelled; and does not graduate, receive a General Educational Development (GED) certificate, continue school outside the public school system, begin college or die.[30]

The 2007 Legislature's H.B. 2237 called for a study of best practices in dropout prevention. In response to this legislation, TEA and third-party evaluators published *Best Practices in Dropout Prevention* in December 2008. This report identified state and federal dropout programs that have been proven to work; highlighted best practices common to effective dropout programs; and recommended future directions for Texas policy on dropout prevention.[31]

TEA's Program Evaluation Unit is responsible for evaluating the effectiveness of key state and federally funded grant programs. It is currently evaluating the Collaborative Dropout Reduction Pilot Program and Texas Dropout Recovery Pilot Program (TDRPP).

The collaborative dropout program was created to encourage school partnerships with community stakeholders to increase the number of students who complete high school. The program's goals include reducing the number of dropouts and increasing job skills and providing employment and continuing education opportunities for students who might otherwise drop out of school.[32]

TDRPP was designed to identify and recruit students who have already dropped out of Texas public schools and provide services to help them to earn a high school diploma or demonstrate college readiness.[33] Both program evaluations will be released to the Legislature in January 2011.

or more progress on math TAKS than 60 percent of campuses statewide. Control variables adjust the results to isolate the campus contribution. In other words, a campus's Math Progress score attempts to remove student socioeconomic factors that may affect learning.

Annual Progress scores for districts can be interpreted similarly, as representing the amount of learning progress made by the district's students, and controlled for the socioeconomic characteristics of each student in the district. A Composite Academic Progress Percentile (CAPP) is calculated as the average of math and reading progress. This represents a summary academic rating with equal weights given to math and reading.

A campus CAPP of 60, for instance, means that during the last three school years, the campus's students showed as much or more progress in math and reading combined than 60 percent of campuses statewide. Similarly, a district CAPP of 60 means that during the last three school years, the district's students showed as much or more progress in math and reading combined than 60 percent of districts statewide.

For a technical description of the methodology used to measure academic progress, see **Technical Appendix 1**.

III. SPENDING MEASURES AND TRENDS

The following section on public school expenditures provides some context for the FAST report's findings and results. It includes an analysis of statewide expenditure trends and an explanation of important financial indicators and costs per pupil by various school program areas. To provide an understanding of the environment in which school funding decisions are made, a summary of Texas' current school finance system is included as well.

DISTRICT COST TRENDS

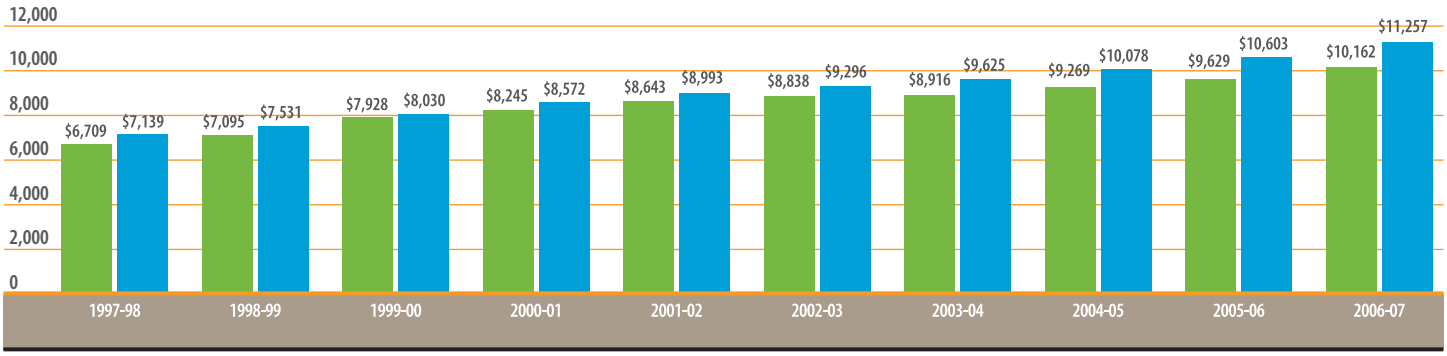
Texas' per-pupil expenditures remained below the national average from 1997 to 2007. From 1997 until 2003, Texas' expenditures per pupil averaged 4.3 percent less than the U.S. figure. By 2007, however, the gap had risen to 8.6 percent (**Exhibit 15**).

While Texas' per-pupil expenditures remained below the national average, they continued to rise at about the same rate as the national average. **Exhibit 16** compares the growth in Texas and U.S. expenditures per pupil with the Consumer Price Index (CPI) to compare the rate of growth to inflation. The exhibit

EXHIBIT 15

PUBLIC SCHOOL DISTRICT EXPENDITURES PER PUPIL, U.S. VS. TEXAS, 1997-2007

(Unadjusted Dollars) Texas Expenditures per Pupil U.S. Expenditures per Pupil



Source: National Center for Education Statistics and Texas Education Agency.

uses an index to measure spending growth by comparing expenditures in a given year to the base school year of 1997-98.

From the base year until 2002-03, Texas' per-pupil expenditures rose about 2 percent faster than the national average. In 2003-04, Texas' expenditures began to grow at a slower rate than the U.S. By 2006-07, Texas expenditures had risen by 51.5 percent since 1997-98, compared to 57.6 percent for the nation. Per-pupil expenditures for both Texas and the nation rose faster than the CPI.

SPENDING BY OBJECT

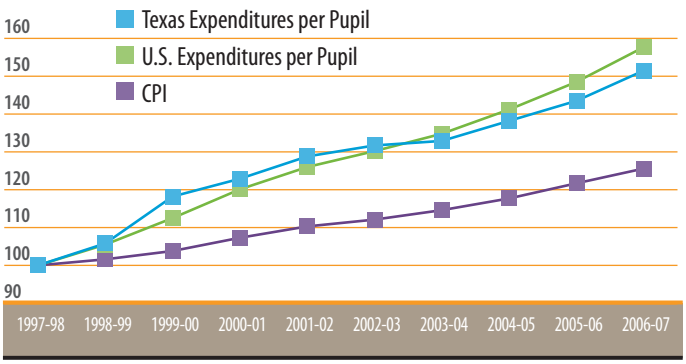
One way in which Texas school districts report expenditures is by "objects" — broad categories of expenditures (**Exhibit 17**). The four broadest object categories reported by TEA are:

- *Payroll Costs* — salaries, wages and benefits for school district employees;
- *Other Operating Costs* — operating expenses such as food services, vehicle fuel, supplies, materials and services;
- *Capital Outlay* — spending on fixed assets such as buildings; and
- *Debt Service* — principal and interest payment on bonds and other debt.

EXHIBIT 16

INDEX OF PUBLIC SCHOOL DISTRICT EXPENDITURES PER PUPIL, U.S. VS. TEXAS

Compared to CPI, 1997-2007

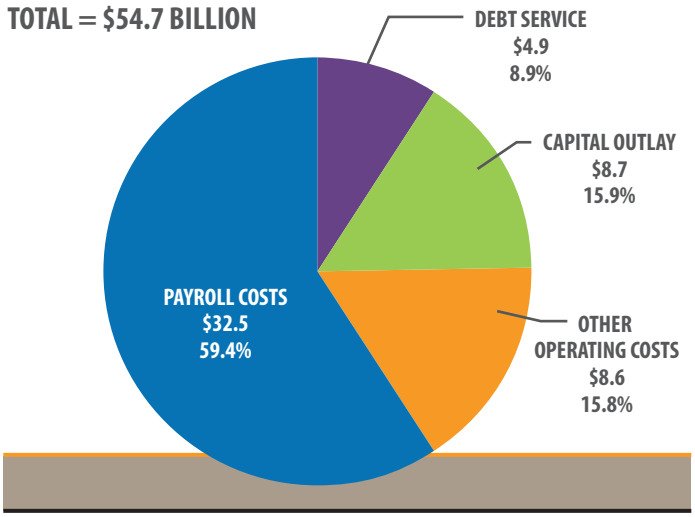


Source: Texas Education Agency.

EXHIBIT 17

STATEWIDE SCHOOL DISTRICT COSTS BY OBJECT

2008-09 School Year (In billions)



Source: Texas Education Agency.

FUNDING

Texas funds public education with a combination of local, state and federal revenue **(Exhibit 18)**. Totals for these revenue sources will vary somewhat from the school district spending reported above as they include state spending not reported by school districts, such as direct state contributions to teacher retirement and state purchases of textbooks.

Texas public school revenues include:

LOCAL FUNDS

- *Local Property Tax* — the school district property tax includes two elements, a maintenance and operations (M&O) tax used to fund daily operations and an interest and sinking (I&S) tax used to pay debt service on any bonds issued to fund the construction of schools and other facilities.
- *Local Bonds and Sale of Real Property* — local revenue from the sale of bonds and real property and the proceeds of capital leases.
- *Other Local Revenue* — revenue derived from shared-services agreements, tuition and fees, facility rentals and other sources.

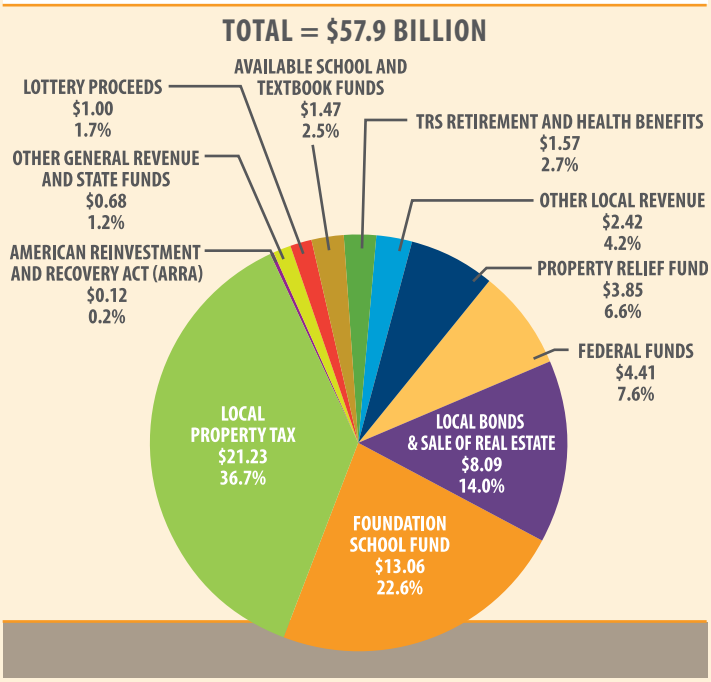
STATE FUNDS

- *Foundation School Fund* — the Texas Constitution dedicates one quarter of all revenue from state occupation taxes (the oil production tax, natural gas production tax and others) to this fund, which also receives amounts transferred from state general revenue.[34]
- *Available School and Textbook Funds* — earnings from the state's Permanent School Fund (PSF) are transferred to the Available School Fund (ASF), which is appropriated by the Legislature for textbooks and direct aid to school districts. The PSF is an endowment consisting of state-owned land and mineral rights, royalty earnings, stocks and bonds, and designed to be a perpetual funding source for education.[35] The ASF also receives one quarter of all revenue generated by the motor fuels tax.
- *Lottery Proceeds* — profits from the operations of the state lottery.
- *Other State Funds* — TEA-administered grants that support initiatives to improve student performance as well as teacher merit pay and awards.

EXHIBIT 18

TEXAS PUBLIC EDUCATION FUNDING

2008-09 School Year (in Billions)



Note: Local M&O and I&S tax amounts shown above are from calendar 2009; the remaining state and federal amounts are for fiscal 2009. Numbers may not total due to rounding.

Source: Comptroller of Public Accounts, Texas Education Agency and Legislative Budget Board.

- *Property Tax Relief Fund* — established by the Legislature in 2006, this fund consists of revenue gained from changes made to the state franchise tax, cigarette and tobacco taxes and the tax on the sale of used motor vehicles.[36] These amounts were intended to replace revenue lost from M&O property tax rates that state law required school districts to reduce by about one-third.
- *Teacher Retirement System (TRS) Retirement and Health Benefits* — the state's contribution for active school employee health benefits and retirees retirement and health benefits.

FEDERAL FUNDS

- *Federal Funds* — funding from the U.S. Department of Education, most of it administered by TEA and flowing through the state treasury.
- *American Recovery and Reinvestment Act (ARRA)* — federal "stimulus" funding for 2009 through 2011, resulting in a temporary increase in the share of school district revenue derived from federal funds.

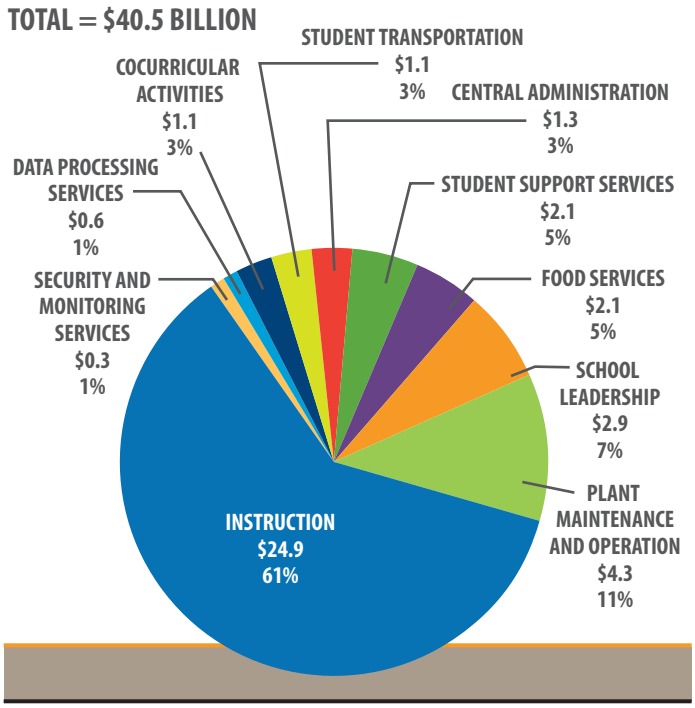
In the 2008-09 school year:

- local property taxes contributed **36.7 percent** of Texas public school funding;
- bonds and other local funds accounted for **18.2 percent**;
- state funds accounted for **37.3 percent**; and
- federal funds accounted for the remaining **7.8 percent**. Less than 1 percent of 2008-09 funding was provided by ARRA.

EXHIBIT 19

STATEWIDE SCHOOL DISTRICT COSTS BY FUNCTION

2008-09 School Year (In billions)

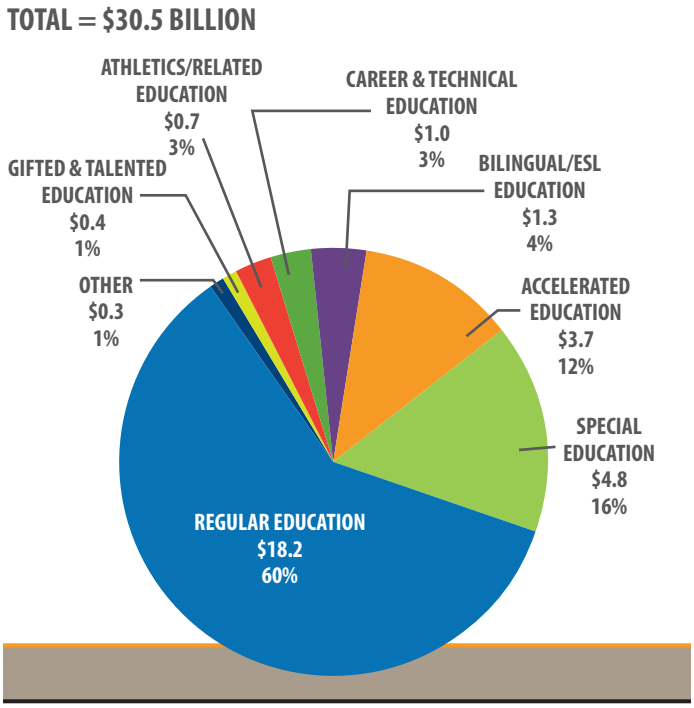


Note: Number may not total due to rounding.
Source: Texas Education Agency.

EXHIBIT 20

STATEWIDE SCHOOL DISTRICT COSTS BY PROGRAM

2008-09 School Year (In billions)



Note: Number may not total due to rounding.
Source: Texas Education Agency.

OTHER SPENDING CATEGORIES

Exhibit 19 details annual statewide school district operating expenditures by *function*, or general operational area. It does not include capital purchases (land and buildings), debt service payments or fund balances. Expenditures associated with instruction were the largest cost element, at 61.5 percent.

TEA also reports spending by *academic program*. The 2009 Texas Legislature's charge for this study directed the Comptroller to examine spending by program. School districts and TEA report spending for eight programs:

Regular Education — spending on basic education for students;

- *Special Education* — spending on services for students with disabilities;
- *Accelerated Education* — spending on services and instruction for students considered at risk of dropping out;
- *Bilingual/English as a Second Language (ESL) Education* — spending on services and instruction intended to ensure English proficiency;
- *Career and Technical Education* — spending on services and instruction intended to prepare students for employment, advanced technical training or homemaking;
- *Athletics and Related Activities* — costs associated with competitive athletics, including coaches and support activities (e.g. cheerleading and drill team) and excluding band;
- *Gifted and Talented Education* — additional costs for services, including instruction, for gifted and talented students; and
- *Other* — spending on services for students removed from a regular classroom for disciplinary or non-disciplinary reasons.

Regular education programs accounted for 59.6 percent of program expenditures in the 2008-09 school year (**Exhibit 20**). Special education programs accounted for 15.7 percent of expenditures and served 9.4 percent of the student population. Special education costs more, with a per-pupil cost of $10,811 versus $4,243 for regular education. (Cost per pupil for regular education does not include special education students who may receive regular education instruction).[37]

SCHOOL DISTRICT MANDATES

Mandates are laws requiring school districts to implement specific programs or standards, some of which can lead to increased or decreased costs for districts. As part of the FAST project, the Comptroller's office asked districts to identify any policies, practices or legislation that impede their progress or are, effectively, unfunded mandates.

The following issues relate directly to factors driving school costs, such as payroll and operating costs. The comments reflect the perspective of school districts interviewed by Comptroller staff regarding the effect of certain policies on their costs.

CLASS SIZE LIMIT

Since 1984, Texas school districts have been required to limit classroom sizes to 22 students per one teacher in kindergarten through grade four. If the school district's average daily attendance is severely affected by a sudden migration of students (from a natural disaster, for example), the district can apply for a waiver to be exempted from this requirement. Districts also can apply for a waiver if the commissioner of Education determines that the requirement places an undue hardship on them.[38]

According to TEA, in 2009-10 the agency granted 940 waivers to 543 campuses in 143 districts, or about 14 percent of all districts. These school districts had 735,646 students in kindergarten through fourth grade. Many school officials, however, find the waiver process difficult, as parents must be notified of the district's intention to increase class sizes, and in some cases a public hearing must be held.[39]

One of the concerns surrounding "22:1" is that it limits districts' ability to staff their campuses in a cost-effective manner. The 1984 law forces some districts to hire more teachers and create more classes than they believe are warranted. Many school officials asserted that classes with up to 25 students could operate without any loss of instructional effectiveness.

If allowed to decide how many students should be in each classroom, some school officials believe that they could allocate teachers and resources to classrooms according to educational need rather than an arbitrarily imposed ratio. Administrators also contend this would lower instructional costs.

Since districts often must have some classes with a limited number of students based upon special needs, the average district class size is often lower than 22:1. Some suggest that the 22:1 requirement be based upon *average* class size rather than applying to *all* classes, allowing districts the flexibility to set class size, allocate resources and limit costs.

STAFF BENEFITS

School districts must contribute to the Teacher Retirement System (TRS) for the state's teacher health benefits programs, TRS-ActiveCare and TRS-Care. TRS-ActiveCare benefits are for active school district employees, while TRS-Care provides benefits for retirees (**Exhibit 21**).

School districts contributed $134.6 million for TRS-Care in 2009, and are expected to provide $153.6 million in 2010. The rate of schools district contributions is set in each General Appropriations Act, but must be between 0.25 percent and 0.75 percent of payroll.[40]

Retirement benefits generally are funded by state and employee contributions. During the first 90 days of each new hire's employment, however, school districts must pay the state's contribution rate to TRS.[41] Districts also must pay TRS contributions for employees who are paid above the state minimum salary schedule.[42]

In many districts, salaries have risen faster than the state minimum schedule due to various economic factors. This, in turn, has increased the amounts districts must pay to TRS for retirement benefits. One district saw its costs for these payments rise from $416,450 in the 2001-02 school year to $1.3 million in 2008-09.[43] All districts provided $442.1 million in retirement benefits during the 2008-09 school year.

EXHIBIT 21

STATE AND DISTRICT CONTRIBUTIONS TO TEACHER RETIREMENT AND HEALTH BENEFIT PLANS, 2008-09

	STATE	SCHOOL DISTRICTS AND EMPLOYEES
RETIREMENT	$1,322,152,760	Districts: $442,097,037 Employees: $1,715,897,645
HEALTH CARE, ACTIVE TEACHERS*	$517,200,00	$648,518,213
HEALTH CARE, RETIRED TEACHERS	$244,281,955	Districts: $134,355,705 Employees: $172,898,170
TOTAL	$2,083,634,715	$3,113,776,770

* Neither TEA nor TRS disaggregates district and employee contributions for TRS-ActiveCare.
Source: Texas Comptroller of Public Accounts, Teachers Retirement System and Texas Education Agency.

School districts also must pay for increased benefits (Medicare, unemployment insurance, workers compensation and TRS-Care) associated with state-mandated teacher salary increases, such as those passed by the Legislature in 2006. Although the Legislature appropriated funds for $2,500 per-teacher salary increases for the 2006-07 biennium, it did not provide additional state funding to pay for the accompanying increase in benefits.

The 2009 Legislature's H.B. 3646 included a salary increase for teachers of at least $80 per month. In addition, the bill altered the Foundation School Program funding formula to guarantee each district an increase of $120 per weighted student in average daily attendance (WADA). The bill requires that no more than 50 percent of the teacher salary increases be paid with increased funding generated by the changes in the Foundation School Program.[44]

TESTING REQUIREMENTS

State law requires TEA to test public school students on what they have learned. While TEA developed the Texas Assessment of Knowledge and Skills (TAKS) for this purpose, local school and school district staff must administer the test to students.

Although the administration of the test requires only a few school days, it often entails weeks of preparation by school and district officials. Teachers and staff receive training on the TEA-issued guidelines concerning proper test security and administration. The security procedures require that test content be secured before testing so that scores are valid; results and student identities must be kept secure after testing.[45]

In addition to the costs associated with training, districts also must cover the costs of the testing documents themselves, including specialized tests such as those provided in large print and Braille. School districts must keep testing records for five years, which can involve storage costs.[46]

REPORTING MANDATES

Districts must provide TEA with data regarding student academic performance, student demographics, attendance and graduation rates, enrollment and other statistical information. Districts report this information through TEA's electronic PEIMS. In the 2008-09 school year, PEIMS reports included 159 required data elements.[47]

Districts have financial reporting requirements as well, including student financial data reported through PEIMS and district financial information reported through the Financial Integrity Rating System of Texas (FIRST). In FIRST, districts report indicators of fiscal responsibility, budgeting, personnel and cash management, which are used as the basis for a financial integrity rating from TEA.

Other financial reporting requirements include reports to the public on financial management, proposed and adopted budgets, expenditures, revenues and audits. Districts also must post public notices and hold public meetings on proposed district budgets and tax rates.[48]

In addition to these, districts must prepare many other reports and public notices. Some public notice requirements are similar to those applying to other governmental entities, but many are unique to school districts (**Exhibit 22**). These notifications may be posted in schools, on websites or in documents mailed to parents. The combined costs of these multiple reporting requirements can be significant.

About eight of these required notices must be published in the local newspaper, often for several days. The costs of newspaper ads can range from a few hundred dollars in the smallest regional papers to thousands of dollars up to $6,000 in larger cities such as Corpus Christi and major markets such as Dallas. Given typical publication requirements of two to three times per year, these expenditures add up to a noticeable budget item for school districts.

EXHIBIT 22

TEXAS SCHOOL DISTRICTS: REQUIRED REPORTS

ANNUAL AUDIT REPORT	Notice of Parental Rights under the Family Educational Rights and Privacy Act
ANNUAL FINANCIAL MANAGEMENT REPORT, NOTICE, AND HEARING*	Notice of Proposed Budget and Tax Rate*
ANNUAL IMPROVEMENT IN STUDENT ACHIEVEMENT REPORT	Notice of Public Education Grant Eligibility
ANNUAL SCHOOL DISTRICT PERFORMANCE REPORT	Notice of School Board Meetings
AUDIT OF PURCHASING CONTRACTS	Notice of School Health Advisory Council Meetings
BUDGET SUMMARY REPORT	Notice of Student Physical Activity Policies and Data
BUS ACCIDENT REPORT	Notice of Tobacco Use Policies
CAMPUS/SCHOOL REPORT CARDS	Notice of Vacant Positions
CHECK REGISTER	Notice Required for Awarding Job Order Contracts
DISCIPLINARY ALTERNATIVE EDUCATION PROGRAM PLACEMENTS AND EXPULSIONS REPORT	Notice to Home-Schooled Students*
DISSEMINATION OF BACTERIAL MENINGITIS INFORMATION	Notices Required for Awarding Competitive Bidding Contracts*
DISSEMINATION OF EMPLOYMENT POLICIES	Notices Required for Hiring a Construction Manager-At-Risk
DISSEMINATION OF GIFTED AND TALENTED PROGRAM POLICIES	Notices Required for Purchase Valued at $25,000 or more*
ELECTRICITY, WATER, AND NATURAL GAS CONSUMPTION REPORT	Notices Required for Purchases of Personal Property Valued between $10,000 and $25,000*
EXPENDITURE AND REVENUE REPORT	Notices Required for Selecting a Contractor through Competitive Sealed Proposals
FILING OF ADOPTED BUDGET	Notification of Landowner's Bill of Rights
HEARING REGARDING USE OF HIGH SCHOOL ALLOTMENT FUNDS	Posting of Conflicts of Interest Disclosure Statements
INFORMED CHOICE REPORT FOR ELECTRONIC COURSE PILOT PROGRAM	Posting of District and Campus Performance Reports
MONTHLY REPORT OF DISTRICT CONTRIBUTIONS FOR EMPLOYEE COMPENSATION ABOVE THE STATE MINIMUM SALARY SCHEDULE	Report of Diagnostic Reading Test Results
NOTICE AND REPORT OF RESULTS OF INTENSIVE MATH AND SCIENCE INSTRUCTION PROGRAMS	Report of Instructional Expenditures Ratio and Instructional Employees Ratio
NOTICE OF "TOP 10 PERCENT" AUTOMATIC COLLEGE ADMISSIONS LAW AND ELIGIBILITY	Report of Management Fees under Purchasing Contracts
NOTICE OF AN ELECTION*	Report of Natural Gas and Liquefied Petroleum Pipe Testing Results
NOTICE OF AVAILABILITY OF STUDENT PHYSICAL FITNESS ASSESSMENT RESULTS	Report of Technology Literacy Assessment Results
NOTICE OF AVAILABLE COLLEGE CREDIT PROGRAMS FOR HIGH SCHOOL STUDENTS	Reporting of Cardiovascular Screening Results

NOTICE OF BILINGUAL AND SPECIAL LANGUAGE PROGRAMS	Reporting of College Preparation Assessment Results
NOTICE OF BOUNDARY CHANGE TO VOTER REGISTRAR	Results of School Facilities Security Audit
NOTICE OF CAMPUS RATING	Retiree Report
NOTICE OF CLASS SIZE LIMIT WAIVER	School Breakfast and Lunch Program Data Report
NOTICE OF DISTRICT'S LOW ACCREDITATION STATUS*	State Spending Targets Report and Board Resolution
NOTICE OF FOOD SERVICE AND VENDING MACHINE GUIDELINES	Student Immunization Status Report
NOTICE OF GROUP HEALTH BENEFITS FOR SCHOOL EMPLOYEES	Student Report Cards and Notice of Unsatisfactory Performance

* Report must be published in a newspaper.
Source: Texas Association of School Boards.

OTHER UNAVOIDABLE COSTS

Districts face other costs beyond their control, such as the cost of fuel used to provide student transportation. Costs associated with facilities include utilities, inspections and general maintenance. Districts also must pay for pest management, the inspection of portable buildings, asbestos removal certification, lead abatement and other maintenance, all of which can be difficult to control. Recent increases in energy costs have affected district utility expenditures. The price of food affects cafeteria services, and although many districts receive federal funds for the free and reduced-price school lunch program and other nutrition programs, these often fail to cover all of the associated costs.[49]

While the prices of goods and services may be beyond the control of districts, they can take concrete steps to reduce costs. For example, by joining an electric utility aggregator, a district may get a reduced electricity rate. A district also can reduce its utility costs through an energy retrofit, which can be financed through the State Energy Conservation Office's LoanSTAR revolving loan program. Districts can save on the price of fuel, food and many other goods by comparing the prices of the Texas Association of School Boards' Local Government Purchasing Cooperative (known as BuyBoard) and the State of Texas Purchasing Cooperative.

ESTIMATING MANDATE COSTS

Estimating the specific costs of state mandates is difficult. Because many of these are carried out as part of existing functions, it is difficult to estimate how much of a particular function is due to the state requirement. For example, all districts keep student attendance records, but how much does it cost to report attendance data through PEIMS? Does the cost of reporting these data include the actual counting of students, or just the personnel time needed to enter the data into PEIMS?

Some cost estimates vary depending on the particular characteristics of each district or of individual schools. Some schools can meet the 22:1 student/teacher requirement with only minimal costs, such as hiring one or a few teachers. For other schools it could be a significant financial burden, particularly if they lack space and must provide additional facilities. The costs of the 22:1 mandate, therefore, can vary drastically.

EXISTING COST INDICATORS

All of the TEA cost indicators described in this section are included in the web tool that accompanies this report. This tool allows users to group districts and campuses in ways that allow for meaningful comparisons of existing cost indicators as well as the indicators developed for this study.

In the 2008-09 school year, Texas had 1,030 independent public school districts and 205 charter school operators, ranging in enrollment from 16 to nearly 200,000. Per-pupil operating expenditures in these districts and charter schools ranged from $1,076 to $19,985.

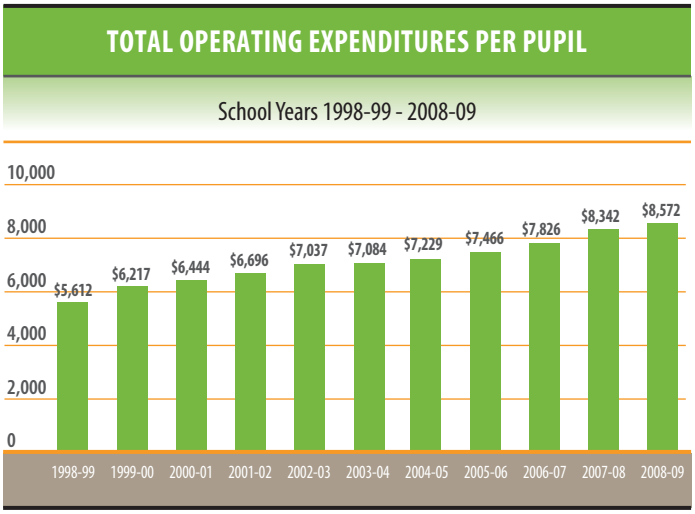
OPERATING EXPENDITURES

Total operating expenditures represent the sum of all actual expenditures for the district's operation, including payroll, professional and contracted services and supplies and materials. Operating expenditures are a subset of total expenditures; they do not include debt service, capital outlay (expenditures for land, buildings and equipment) or community services

(activities that benefit the whole community, such as the operation of a school library, swimming pool and playgrounds that are available to the public).

In the 2008-09 school year, operating expenditures at Texas public schools totaled more than $40 billion, and were used to educate 4.7 million students. This is an average of $8,572 per pupil in operating costs, an increase of 53 percent from the 1998-99 school year (**Exhibit 23**).

EXHIBIT 23



Source: Texas Education Agency.

TRANSPORTATION

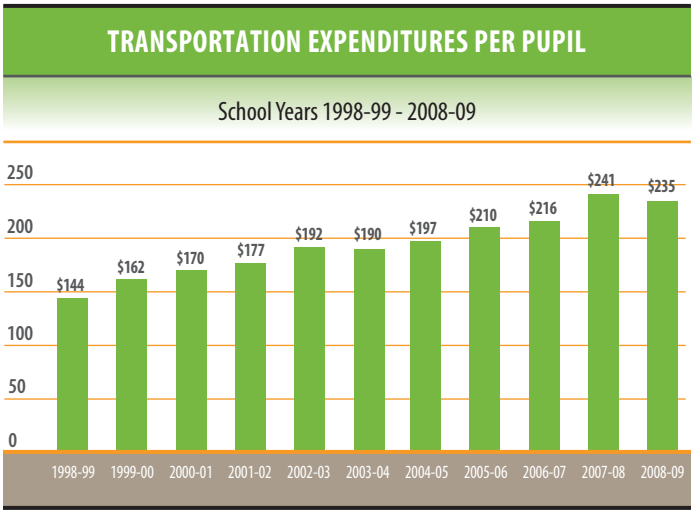
In the 2008-09 school year, Texas school districts spent $1.1 billion on student transportation. This is an average of $235 per pupil, an increase of 63 percent since the 1998-99 school year (**Exhibit 24**). Transportation expenditures are driven by some characteristics beyond the control of the district, such as geographic size and traffic congestion, as well as by characteristics that are under district control, such as bus routing decisions.

In 2008-09, transportation expenditures ranged from zero at 114 charter operators and nine primarily rural districts to $2,306 per pupil at Doss CSD, a rural district in Gillespie County.

PAYROLL

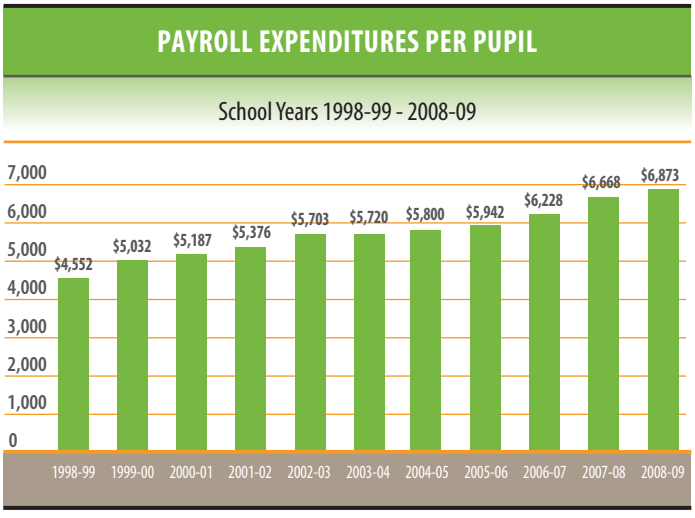
Payroll includes the total salaries or wages and benefits for all school district employees. Texas school districts spent $32 billion on school district payrolls in 2008-09. This is an average of $6,873 per pupil, 51 percent more than in the 1998-99 school year (**Exhibit 25**). Payroll expenditures ranged from less than $1,500 per pupil at the Medical Center Charter School in Harris County to $21,378 per pupil at Guthrie CSD in King County.

EXHIBIT 24



Source: Texas Education Agency.

EXHIBIT 25



Source: Texas Education Agency.

TEXAS SCHOOL FINANCE SYSTEM

School districts' ability to raise revenue through property taxes is controlled and limited by the value of the properties they contain. A school district with a large number of valuable properties, whether industrial, retail or residential, can raise an adequate sum even with a relatively low tax rate. A district made up mostly of low-value properties, such as relatively cheap agricultural land, may find it difficult to raise enough funds for education even with a high tax rate. Such districts typically are called "property-wealthy" or "property-poor," and decades of effort have been devoted to equalizing the financial disparity between them.

Before 1949, Texas distributed educational funding on a per capita basis. The state's Gilmer-Aikin Act of 1949 introduced a new funding system that distributed funds to school districts based on the ability of districts and counties to raise revenue through property taxes. The distribution was based on an "economic index" that used each district's percentage of its county's tax roll to measure its ability to raise revenue. The act also established a Minimum Foundation Program to assist poorer districts, and established average daily attendance (ADA) as a component of the funding distribution to encourage attendance.[50]

The 1975 Legislature's House Bill 1126, passed in response to the San Antonio Independent School District v. Rodriguez court case, attempted to equalize district funding disparities by increasing state aid to poorer districts. This legislation also renamed the Minimum Foundation Program as the Foundation School Program.[51]

In 1984, the Legislature passed House Bill 72, which refined the ADA concept as weighted average daily attendance (WADA), to allow for different types of students that require varying expenditures (special education students, for instance, are more expensive to educate than regular students). H.B. 72 also made changes to school funding formulas intended to increase aid to property-poor districts.[52]

In the same year, the first of four state court cases called Edgewood challenged the constitutionality of the Texas school finance system, focusing on the disparity between property-poor and property-wealthy districts. At the time, school district property tax rates around the state ranged from 18 cents to $1.50 per $100 of property value.

The court found this system inequitable because it did not provide school districts with equal access to revenues through similar "tax effort," the levying of similar tax rates. The finance system was found unconstitutional in two subsequent court cases during the late 1980s and early 1990s. Each time, the Legislature responded with changes to the finance system, but the courts did not find it constitutional until 1995, after the adoption of 1993's Senate Bill 7, which instituted the current system of recapture. (See discussion of Recapture below.)[53] The most recent court challenge to the constitutionality of the finance system was the West Orange-Cove case, initially filed in 2001. This case argued that the system violated Article VIII, Section 1-e of the Texas Constitution, which forbids the state to levy property taxes.

The plaintiff in the case claimed that most districts were forced to levy taxes at or near the maximum allowable rate of $1.50 to provide suitable education for their students, and therefore had no real discretion concerning rate setting, thus making the $1.50 statutory cap a de facto statewide property tax. The court agreed and declared the system unconstitutional in 2005. The Legislature responded by passing House Bill 1 in 2006, lowering district M&O rates and providing additional tax rate capacity at the district's discretion.[54]

TAX RATE, BASIC ALLOTMENT AND GUARANTEED YIELD

In 2006, the Legislature lowered or "compressed" the maximum rates at which school districts can set their M&O taxes. These compressed rates began to apply with the 2006-07 school year and were based on each district's rate in 2005.

For the 2006-07 school year, districts' rates were compressed to 88.67 percent of their 2005 rates. For the 2007-08 school year, rates were further compressed, to 66.67 percent of the 2005 rate. Since most districts were at or near the $1.50 cap at that time, these rate reductions had the effect of reducing most districts' rates to $1.33 in 2006-07 and to $1.00 in 2007-08 and subsequent years.[55]

The school funding formula consists of two "tiers." Tier 1 determines the basic allotment, or base amount per student, through a formula that accounts for different types of students and various allotments. Tier 2 is additional revenue raised by districts to supplement funding received through Tier 1.

The 2009 Legislature set the basic allotment per student — Tier 1 — as the greater of $4,765 or the average statewide property value per WADA multiplied by .0165. The basic allotment is multiplied by a Cost of Education Index (CEI) that compensates for cost differences due to geographic location and adjusted for enrollment to account for operational costs such as economies of scale. This adjusted allotment, in turn, is multiplied by the district's student population to calculate the total amount for the district. Some types of students, however, are "weighted" to reflect a higher cost associated with educating those students (special education, gifted and talented, bilingual education, etc.). These weights and additional allotments for transportation and staff are applied to the adjusted allotment in the calculation of the districts' Tier 1 funding.[56]

The Tier 1 allotment is paid with both state and local funding. Before the passage of House Bill 3646 in 2009, the local share of the basic allotment was $0.86 cents of the district's M&O tax rate. Today, the local share is calculated by applying the district's compressed M&O tax rate to the total taxable value of all property in the district and dividing by 100 (since the rate is per $100 of value). This local share is subtracted from the total allotment and the state makes up the difference.

Districts have discretion in raising revenue to fund education above the Tier 1 funding level through "enrichment," or Tier 2. For every cent a district raises its M&O rate above its compressed rate, the state will supplement the amount of revenue raised so that the local and state contributions together equal a "guaranteed yield" per student. The amount of this guaranteed yield varies depending on how far above the compressed rate a district raises its total M&O tax rate. Such increases are limited to a statutory maximum of $1.17 — a dollar for Tier 1 plus 17 cents for enrichment.

School districts can raise their M&O tax rate by up to four cents above the compressed rate without an election, but must seek voter approval for the fifth and sixth cents. These first six cents above the compressed M&O rate are not subject to recapture by the state and are sometimes called the "golden pennies."

These golden pennies will yield districts $59.02 per WADA. Again, this amount represents both local revenue raised through property taxes and any additional state revenue needed to guarantee the yield of $59.02.

Any increase above six cents — sometimes called the "copper pennies" — must be approved by voters and is subject to recapture. Furthermore, the guaranteed yield on any increase above six cents is lower, at $31.95 per WADA.[57] (See discussion on *Recapture* below.)

STATE FACILITIES FUNDING

As noted above, school districts also levy interest and sinking (I&S) property taxes to pay debt on bonds issued to support facility construction. They also receive allotments for this purpose. The *Instructional Facilities Allotment* (IFA) funds debt service on newly issued debt, while the *Existing Debt Allotment* (EDA) supports debt on previously issued bonds. Both programs provide a guaranteed yield based on "local effort," the level of I&S taxes levied to pay for facilities.

The IFA helps districts cover debt service payments on bonds issued for the construction, renovation or expansion of instructional facilities. Districts usually must issue bonds to pay for new facilities, a step that requires a voter-approved I&S tax rate increase to pay the related interest and principal. For each penny of tax per $100 of property value levied to fund these facilities, the IFA will provide a guaranteed amount of revenue (state and local combined) of $35 per student as reflected by simple (rather than weighted) average daily attendance.

School districts pursuing state funding though the IFA must apply to TEA. Each year, after all applications have been received, TEA ranks the districts from lowest property wealth per student to highest, with the lowest receiving grants first. As a result, not all districts that apply for the IFA receive funding. The amount of funding a district can receive is limited to $250 per student or the actual debt payment, whichever is less.[58]

The Existing Debt Allotment program is for debt on existing bonds. The program is similar to IFA, although there is no competition for funding. EDA guarantees combined state and local revenue of $35 per student for every penny of I&S taxes levied, up to 29 cents per $100 of property value. Districts are eligible for EDA funding if they are not receiving funds through IFA.[59]

RECAPTURE

Since 1993, the school finance system has incorporated the concept of *recapture* in an effort to equalize funding among school districts. Because the funding system relies on property taxes, districts that are property wealthy have the ability to raise enough revenue to fund schools at an acceptable level while maintaining low tax rates. These districts may have valuable residential property, commercial/industrial property, or oil and gas property.

Often called "Robin Hood," the system redistributes revenue from property-wealthy districts to poorer ones. Chapter 41 of the Texas Education Code requires property wealthy districts to reduce their taxable value to the equalized wealth level (EWL). To reach the EWL, districts purchase "attendance credits" from the state or educate students from a less wealthy district in order to reduce its wealth per student. For its compressed rate, the EWL is $476,500 per weighted student, so district must remit to the state any M&O tax revenues generated in excess of this amount. The next six "golden pennies" above the compressed rate are not subject to recapture. The remaining "copper pennies" up to the statutory $1.17 are subject to recapture and districts must remit amounts above the EWL of $319,500 per weighted student.[60]

TARGET REVENUE

When the Legislature compressed M&O tax rates in 2006, it wanted to make sure no school district's funding was reduced. Since districts were collecting less revenue, the state provided additional funding through the Property Tax Relief Fund. The state guaranteed the total (state and local) amounts per WADA would be either the amount the district received in the 2005-06 school year or the amount it would have received in the 2006-07 school year. Also added to this "target revenue" amount was $275 per ADA for grades 9-12 and a $2,500 employee pay raise passed by the Legislature in 2006. Any revenue generated by the compressed rate above this adjusted target revenue amount is remitted to the state.[61]

While the intent was to maintain school district funding levels, some district officials and others are concerned the target revenue system does not take into account changing economic conditions of districts and the effect on property values. For some districts, tax revenue may have been unusually high or low the years when the target revenue amount was set.

Adjusted target revenue amounts range from $2,441 to 12,972 per WADA across the state. For the 543 districts that have a $1.00 M&O tax rate, target revenue amounts range from $3,892 to $12,418 per WADA. This illustrates the discrepancy of funding in districts with the same tax effort.

During the FAST project, some school officials told Comptroller staff that the target revenue system represents a significant problem for them. They said the system does not keep up with increasing operating costs of school districts and creates funding discrepancies, often among neighboring districts.

House Bill 3646, passed in 2009, changed the funding formula to guarantee each district an increase of at least $120 per WADA over the previous target revenue amount. The state will make up the difference if the new target revenue amount, based on the H.B. 3646 calculations, is less than the old target revenue amount. The bill, however, stipulates that a district's funding cannot increase more than $350 per WADA each year.[62]

CHAPTER 313

The 2001 Texas Legislature's House Bill 1200, now Tax Code Chapter 313 (the Texas Economic Development Act), allows school districts to attract new taxable property development by offering a tax credit and an eight-year limitation on the appraised value of the property for the maintenance and operations portion of the school district property tax. The tax revenue the school district forgoes in this manner is substantially replaced through the school funding formula. Furthermore, in many cases school districts have negotiated payments in lieu of taxes based on the tax savings accrued by the business receiving the tax break.

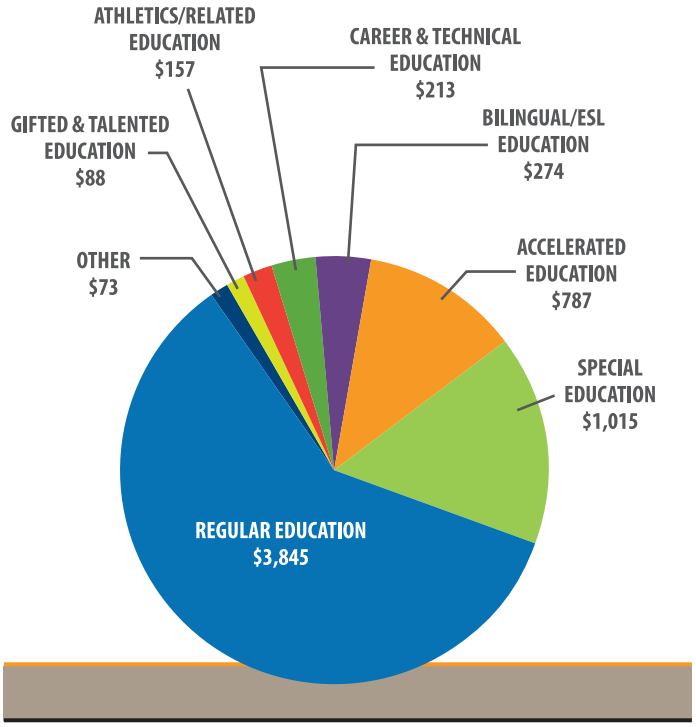
OPERATING EXPENDITURES BY PROGRAM

TEA also reports program expenditures per pupil (**Exhibit 26**). TEA reports these figures by dividing the total amount spent on each program by total enrollment, as opposed to dividing by the total number of students that actually participate in the program. The reported per-pupil values, therefore, do *not* represent the amount actually spent on each student in the program.

EXHIBIT 26

PER-PUPIL OPERATING EXPENDITURES BY PROGRAM

2008-09 School Year



Source: Texas Education Agency.

TEA only reports enrollment in four program areas. **Exhibit 27** illustrates per-student spending for these academic programs.

EXHIBIT 27

SPENDING PER PUPIL IN FOUR ACADEMIC PROGRAMS, 2008-09

PROGRAM	SPENDING PER STUDENT
SPECIAL EDUCATION	$10,811
BILINGUAL/ESL EDUCATION	1,711
GIFTED AND TALENTED EDUCATION	1,151
CAREER AND TECHNICAL EDUCATION	998

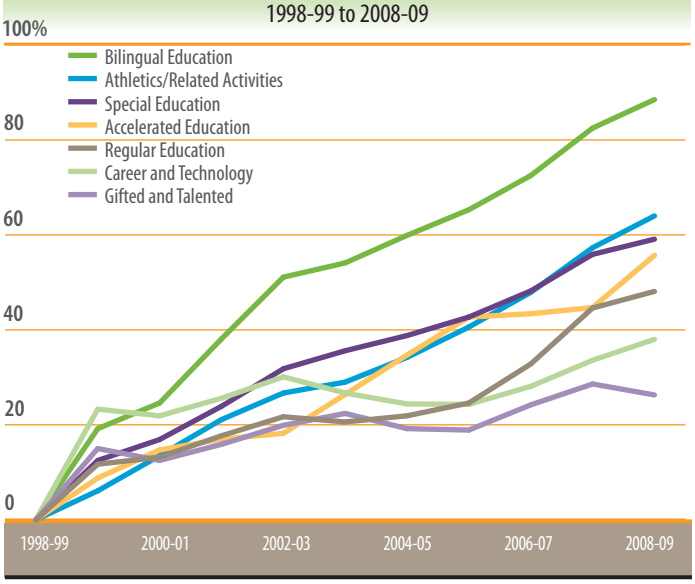
Source: Texas Education Agency.

Since the 1998-99 school year, per-pupil expenditures have risen for all program types (**Exhibit 28**). Regular education spending has increased about 4 percent annually since 1999, accounting for 59.6 percent of all spending in 2008-09. Spending on bilingual education and athletic-related activities both rose by about 6.5 percent annually, but make up a small part of total program costs, at 4.2 percent and 2.4 percent respectively.

EXHIBIT 28

PERCENT CHANGE OF STATEWIDE SCHOOL DISTRICT PER PUPIL EXPENDITURES BY PROGRAM

1998-99 to 2008-09



Source: Texas Education Agency.

Beginning in the 2002-03 school year, expenditures on disciplinary and non-disciplinary Alternative Education Programs are reported as Other Program Expenditures rather than as a component of Accelerated Education Expenditures.

Bilingual/ESL Education

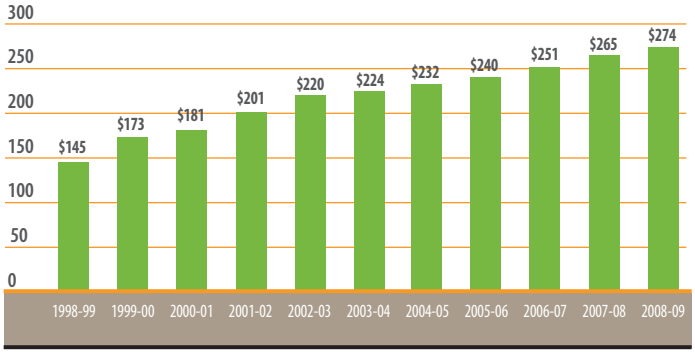
Bilingual/ESL education expenditures include the cost of educational or other services intended to make students proficient in the English language, including composition and academic language related to required courses.

In the 2008-09 school year, Texas school districts spent $1.3 billion on bilingual/ESL education, or an average of $274 per pupil, 89 percent more than in the 1998-99 school year (**Exhibit 29**). Bilingual expenditures ranged from zero in 229 districts and charter operators to $1,506 per pupil in Irving ISD.

EXHIBIT 29

BILINGUAL/ESL EDUCATION EXPENDITURES PER PUPIL

School Years 1998-99 to 2008-09



Source: Texas Education Agency.

Career and Technology

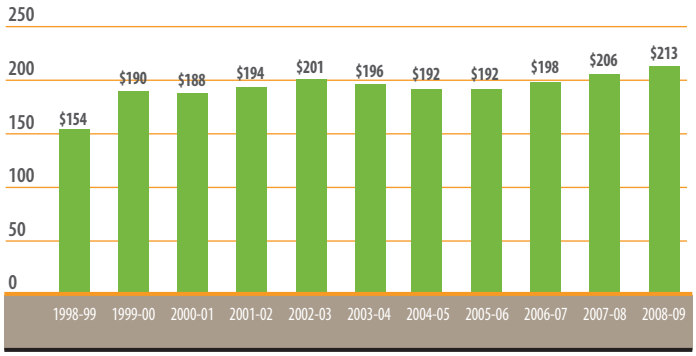
Career and technology program expenditures include the cost of educational and other services intended to prepare students for gainful employment, advanced technical training or homemaking. This may include apprenticeship and job training activities.

In the 2008-09 school year, Texas school districts spent $1 billion on career and technical education, an average of $213 per pupil, 38 percent more than in the 1998-99 school year (**Exhibit 30**). These expenditures ranged from zero in 171 districts and charter operators to $5,774 per pupil at Raven School, a charter school in Walker County.

EXHIBIT 30

CAREER AND TECHNOLOGY EXPENDITURES PER PUPIL

School Years 1998-99 to 2008-09



Source: Texas Education Agency.

Accelerated Education

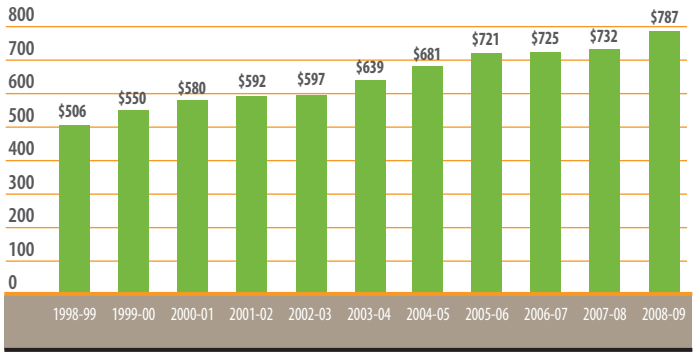
Accelerated education expenditures include the cost of providing services in addition to basic instruction. Such services are intended to increase the amount and quality of instructional time provided to students at risk of dropping out, and to support campuses with student bodies that are at least 40 percent educationally disadvantaged. Beginning in the 2002-03 school year, expenditures on disciplinary and non-disciplinary alternative education programs are reported as Other Program Expenditures rather than as a part of the Accelerated Education category.

In the 2008-09 school year, Texas school districts spent $3.7 billion on accelerated education, an average of $787 per pupil, and 56 percent more than in the 1998-99 school year (**Exhibit 31**). Expenditures ranged from zero in eight districts and charter operators to $5,865 at Ramirez CSD in Duval county.

EXHIBIT 31

ACCELERATED EDUCATION EXPENDITURES PER PUPIL

School Years 1998-99 to 2008-09



Source: Texas Education Agency.

Gifted and Talented

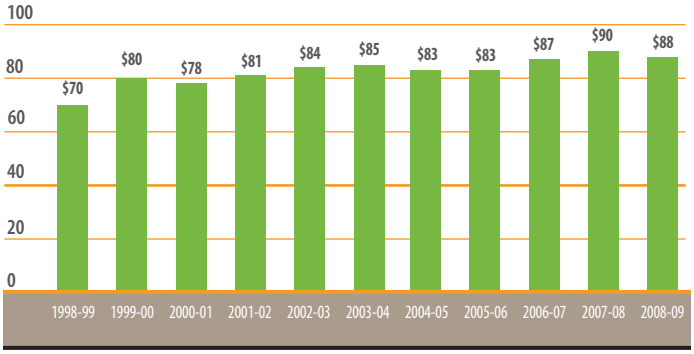
Gifted and talented expenditures include the cost to assess students for placement in such programs and to provide instructional services beyond the basic educational program.

In the 2008-09 school year, Texas school districts spent $418 million on gifted and talented education. This is an average of $88 per pupil, 26 percent more than in the 1998-99 school year (**Exhibit 32**). Expenditures ranged from zero in 185 districts and charter operators to $738 per pupil in Glasscock County ISD.

EXHIBIT 32

GIFTED AND TALENTED EXPENDITURES PER PUPIL

School Years 1998-99 to 2008-09

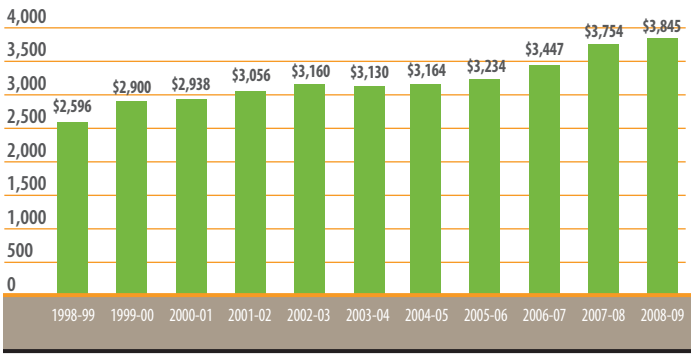


Source: Texas Education Agency.

EXHIBIT 33

REGULAR EDUCATION EXPENDITURES PER PUPIL

School Years 1998-99 to 2008-09



Source: Texas Education Agency.

Regular Education

Regular education expenditures are the costs incurred to provide basic educational services for all students not in special education; they represent the bulk of all educational spending.

In the 2008-09 school year, Texas school districts spent $18.2 billion on regular education, or an average of $3,845 per pupil, 48 percent more than in the 1998-99 school year (**Exhibit 33**). Regular education expenditures ranged from less than $1,000 per pupil at six charter operators to nearly $14,000 per pupil in Valentine ISD in Jeff Davis County, Divide ISD in Kerr County and Marathon ISD in Brewster County.

Special Education

Special education program expenditures include the costs to evaluate, place and provide educational and other services to students who have individual educational plans approved by Admission, Review and Dismissal committees. These plans are based on students' abilities and learning needs.

DISTRICT FUND BALANCES

District fund balances reported to TEA represent the difference between a district's assets and liabilities. Each district's total fund balance consists of three separate types of balances:

- reserved/nonspendable or restricted
- designated/committed or assigned
- unreserved, undesignated/unassigned

Reserved/nonspendable or restricted funds are those that cannot be spent or are reserved for a specific legal purpose, such as funds associated with the federal National School Lunch Program.

Designated/committed or assigned funds are amounts earmarked by the district's school board for a specific purpose and to be spent within a reasonable time period. Examples of such funds are amounts designated for construction projects not funded by bond debt, or for self-insurance programs.

The remaining amounts not reserved or designated are *unreserved or undesignated/unassigned* fund balances.[63] It is important to note, however, that while these amounts are not designated for a specific purpose, they are not necessarily available for spending on *any* purpose. They represent reserve funds, and help to guarantee districts' cash flow, since state funds, local revenues and federal funds arrive at different times throughout the year.

Local tax revenues are received in January and are expended throughout the calendar year. State and federal funds, however, usually arrive in the fall, at the beginning of the school year. School districts report their fund balances to TEA near the end of their fiscal years, usually in June through August. These fund balances, therefore, generally reflect the expenditure of all or most state and federal funds while local revenues remain in districts' accounts.

OPTIMUM FUND BALANCE

TEA works with school districts to set an *optimum fund balance* for each district's General Fund. This balance includes both designated and reserved balance amounts reported by the district. The remaining undesignated/unreserved portion of the optimum balance comprises several estimates.

Districts should keep an average of two months' cash disbursements in reserve (an industry standard recommended by the Government Finance Officers Association). They also estimate the amount of local tax revenues needed to cover expenses until state funds are received. Districts may use general funds to maintain cash flow until federal funds are received, or for a capital project that eventually will be funded with bond proceeds.

To determine part of their funding, districts also must estimate the number of students that will attend before the school year begins. Once the fall semester has begun, and student enrollment has settled, districts then report a revised student estimate that TEA uses to adjust their funding.[64]

Exhibit 34 shows the calculation of the total optimum fund balance for all school districts in 2009. Per TEA, districts were required to keep only one month in cash disbursements in reserve in 2009, as opposed to two months for 2010. Total actual fund balances were 4.6 percent above the estimated optimum. [65]

Exhibit 35 compares reported total fund balances compared to optimum balances for the last four years.

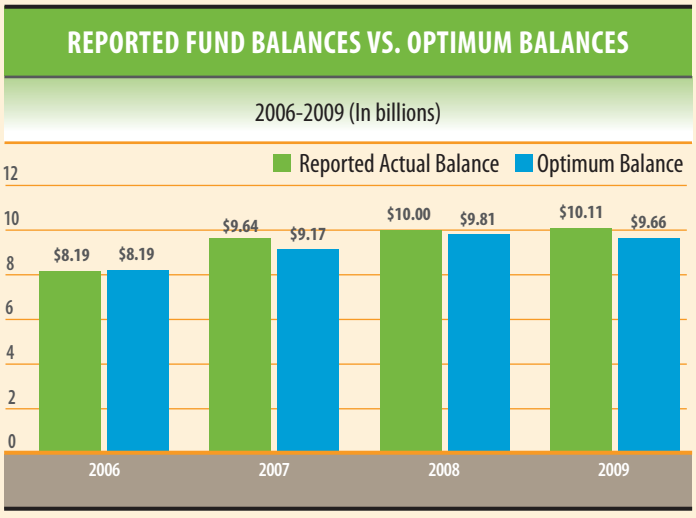
EXHIBIT 34

STATEWIDE DISTRICT FUND BALANCES 2009

1	Reserved and Designated Funds	$3,037,889,718
2	Cash flow amounts to cover expenses until the receipt of federal funds	$2,914,858,337
3	Cash flow amounts to cover expenses until the receipt of state funds	$268,625,776
4	Cash flow amounts to cover capital projects until bond issuances	$24,434,660
5	Cash flow amounts to cover estimated average of one months' cash disbursements	$3,336,358,810
6	Adjustments for districts' revised student enrollment estimate	$84,519,233
	Optimum Fund Balance (Total of Rows 1 through 6)	$9,666,686,534
	Actual Fund Balance as reported by Districts	$10,112,702,005
	Actual over or (under) Optimum	$446,015,471

Source: Texas Education Agency

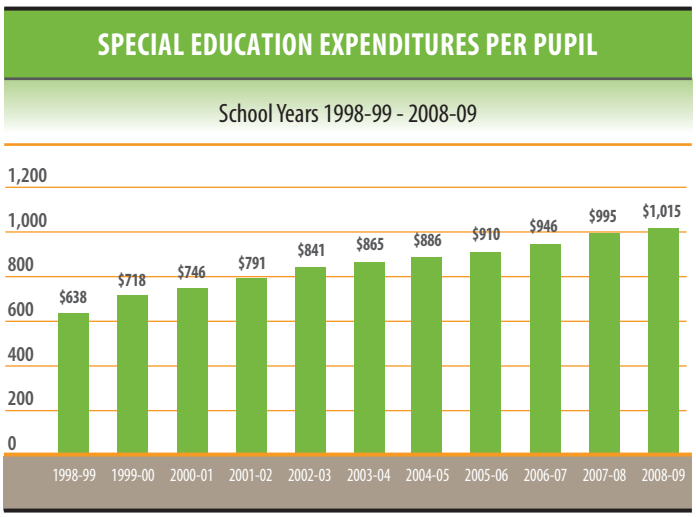
EXHIBIT 35



Source: Texas Education Agency.

In the 2008-09 school year, Texas school districts spent $4.8 billion on special education, or an average of $1,015 per pupil, 59 percent more than in the 1998-99 school year (**Exhibit 36**). Special education expenditures ranged from zero in six districts and charter operators to $15,878 per pupil at Big Springs Charter School in Real County.

EXHIBIT 36



Source: Texas Education Agency.

Athletics

Athletics program expenditures include the costs incurred to provide for participation in competitive athletic activities, including coaching and facilities costs as well as costs for drill teams, cheerleaders, pep squads or other organized activities that support athletics (excluding band).

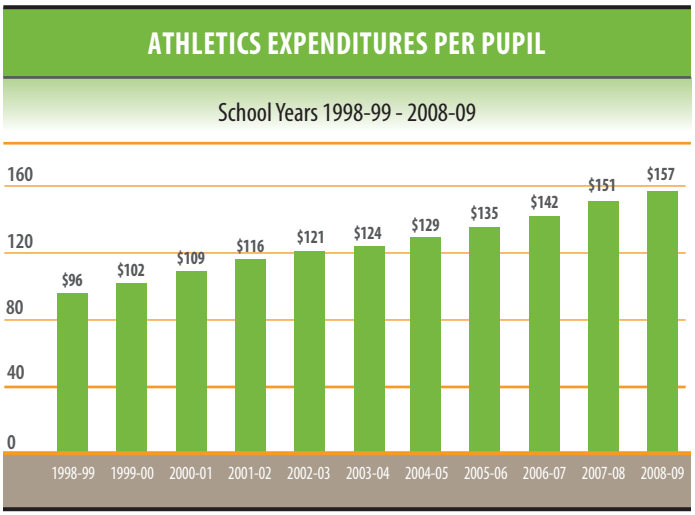
In the 2008-09 school year, Texas school districts spent about $740 million on athletics, an average of $157 per pupil, 64 percent more than in the 1998-99 school year (**Exhibit 37**). Athletics expenditures ranged from zero in 183 districts and charter operators to $1,276 per pupil in Valentine ISD in Jeff Davis County.

Other Program Expenditures

Beginning in the 2002-03 school year, TEA began reporting "Other" program expenditures. This category includes the costs of services provided to students in disciplinary and non-disciplinary alternative education programs.

In the 2008-09 school year, Texas school districts spent $347 million on "other" programs, an average of $73 per pupil, 65

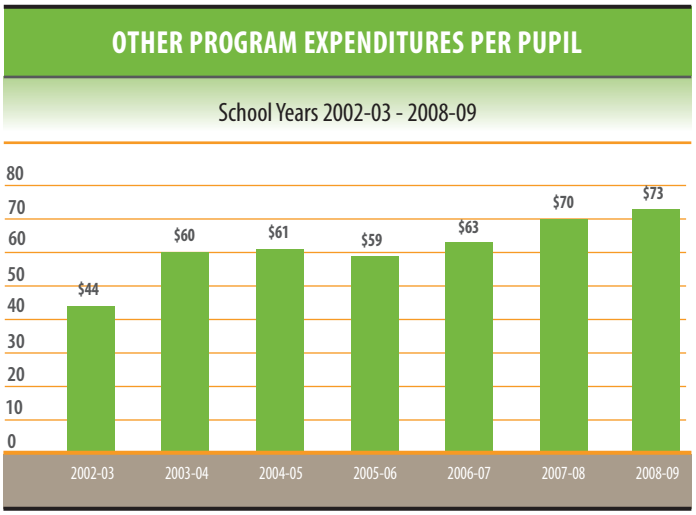
EXHIBIT 37



Source: Texas Education Agency.

percent more than in the 2002-03 school year (**Exhibit 38**). Other program expenditures ranged from zero in 784 districts and charter operators to $1,429 per pupil in Morton ISD in Cochran County.[66]

EXHIBIT 38



Source: Texas Education Agency.

FAST SPENDING INDEX

Texas districts and campuses operate in a variety of "cost environments" — socioeconomic and geographic characteristics that influence the cost of education and are often beyond the school district's control. The FAST research team evaluated financial data for each district and campus by comparing them to other districts or campuses that can be considered "fiscal peers," in

EXHIBIT 39

FAST RATINGS

		SPENDING INDEX				
		"VERY HIGH"	"HIGH"	"AVERAGE"	"LOW"	"VERY LOW"
COMPOSITE ACADEMIC PROGRESS PERCENTILE	80-99	★★★	★★★½	★★★★	★★★★½	★★★★★
	60-79	★★½	★★★	★★★½	★★★★	★★★★½
	40-59	★★	★★½	★★★	★★★½	★★★★
	20-39	★½	★★	★★½	★★★	★★★½
	Less than 20	★	★½	★★	★★½	★★★

Source: Texas Comptroller of Public Accounts.

that they operate in similar cost environments, are of similar size and serve similar students.

To ensure the validity of financial comparisons, the research team employed a technique called *propensity-score matching* to identify up to 40 peers for each Texas school district, based on common cost factors such as input prices, school district size and student demographics. Based on these comparisons, each district received a financial rating, a "spending index" value ranging from very low to very high, with very low indicating the lowest relative spending in the fiscal peer group and very high representing the highest.

For a technical discussion of the spending index methodology, see **Technical Appendix 2**.

FAST RATING

The review team created a *FAST rating* that integrates the academic progress and spending measures to identify districts responsible for strong and cost-effective academic growth.

Each district has received a FAST rating ranging from one to five stars, with half-star increments (**Exhibit 39**). A five-star district has a composite academic progress percentile between 80 and 99 and a spending index of "Very Low." A one-star district has a composite progress percentile below 20 and a spending index of "Very High." A district with "Very High" spending and a composite academic progress percentile of 80 to 99, and a district with "Very Low" spending and a composite progress percentile below 20, both earn three-star FAST ratings. This rating does not make any judgment of the relative value of spending versus academic progress, recognizing that different school districts have different priorities and different constraints.

IV. RECOMMENDATIONS

INSTRUCTION

Public school payroll costs, at **$32.5 billion** in the 2008-09 school year, account for nearly **60 percent** of all school district spending. To help control these costs, Comptroller staff recommends eliminating the 22-student limit for each K-4 classroom and instituting an average 22-student class size instead.

Other recommendations to improve instruction and reduce related costs include rewarding teachers for performance rather than tenure or degree level attained, evaluating whether the ratio of teachers to administrators should be reduced, evaluating the effectiveness of teacher preparation programs, expanding access to online courses and requiring publishers to provide textbooks in a format compatible with electronic reading devices.

1. ELIMINATE THE 22-STUDENT LIMIT FOR EACH K-4 CLASSROOM AND REQUIRE SCHOOLS TO MAINTAIN AN AVERAGE 22-STUDENT CLASS SIZE INSTEAD.

All K-4 classrooms must have a student/teacher class size limit of no more than 22 to one, a mandate school districts often cite as overly burdensome. Dropping this requirement for each K-4 classroom and replacing it with an average of 22 to 1 for Kindergarten through fourth grade would give districts the flexibility to allocate their resources efficiently while continuing to ensure that classes remain at manageable sizes.

For example, a district with 66 students in second grade currently must have three teachers, but the addition of just one more student would require the hiring of another teacher plus the acquisition of additional classroom space. Mandating that

all K-4 classes have no more than 22 students per teacher results in many having significantly fewer students per teacher; the current Texas average is 19.3 students per teacher in K-4. Changing state law to allow K-4 classes to average 22 students per teacher would mean some classes might have slightly more than 22 students and other classes would have slightly fewer.

If K-4 classrooms had the same average student-teacher ratio as the state's fifth-grade classrooms, the state would need fewer elementary teachers. Using the average salary of K-4 teachers ($46,904), **Exhibit 40** estimates a range of savings based on the average number of students per teacher. These estimates do not include savings from benefits.

EXHIBIT 40

POTENTIAL SAVINGS FROM INCREASED AVERAGE CLASSROOM SIZE KINDERGARTEN THROUGH FOURTH GRADE (AMOUNTS IN MILLIONS)

CLASS SIZE AVERAGE OF 20	CLASS SIZE AVERAGE OF 20.5	CLASS SIZE AVERAGE OF 21	CLASS SIZE AVERAGE OF 21.5	CLASS SIZE AVERAGE OF 22
$159.0	$265.9	$367.8	$464.9	$557.5

Source: Texas Comptroller of Public Accounts.

It is important to note, however, that it is unlikely, even with a change to state law, that all K-4 student/teacher ratios would be increased such that average ratios would be 22:1 at every school in the state.

In addition, many schools already exceed the 22:1 requirement in their K-4 classrooms. School districts are allowed to seek a waiver to do so from TEA, which grants virtually all waiver requests. According to TEA, in 2009-10, the agency granted 940 waivers to 543 campuses in 143 districts, about 14 percent of all districts. There were 735,646 students in kindergarten through fourth grade in these districts. The process, however, requires time and effort from district staff and TEA. Allowing an average student/teacher ratio of 22 to 1 would reduce the number of waiver requests, thus removing a bureaucratic hurdle and reducing costs. Other savings might result from, for example, a reduction in the number of classrooms needed or lower utility costs.

2. ENSURE THAT DISTRICT TEACHER EVALUATION AND RETENTION POLICIES RETAIN AND REWARD EFFECTIVE TEACHERS.

Instead of rewarding teachers for years of service or advanced degrees, teacher salary schedules should reward teachers based on performance. Successful teachers also should be given incentives to teach in low-performing schools that find it difficult to attract quality teachers. Once TEA has collected data connecting students to individual teachers, value-added measures of student performance should be used as a component of teacher evaluation.

Training for existing teachers should be designed to improve performance, using methods that evidence shows are effective in making teachers more effective at improving student performance. Programs that cannot demonstrate success in improving student performance should be replaced.

In addition, the Legislature should amend state law to facilitate the dismissal of ineffective teachers. To minimize classroom disruption, districts should be allowed to notify teachers that their contracts will not be renewed at the end of a school year instead of during the year.

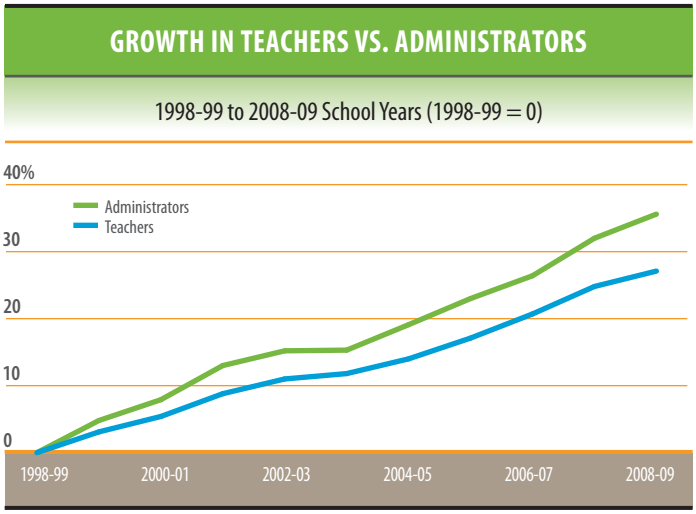
3. STUDY PATTERNS IN SCHOOL DISTRICT ADMINISTRATIVE STAFFING.

In the last 11 years, the ratio of teachers to administrators in Texas declined from 13.8 to one in the 1998-99 school year to 13.0 to one in 2008-09. In these ratios, "administrator" includes the following positions, as defined by TEA:

- Assistant Principal
- Assistant, Associate and/or Deputy Superintendent
- Athletic Director
- Business Manager
- Director of Personnel and/or Human Resources
- Instructional Officer
- Principal
- Registrar
- Superintendent, Chief Administrative Officer, Chief Executive Officer and/or President
- Tax Assessor and/or Collector
- Teacher Supervisor

From 1998-99 to 2008-09, the number of teachers in Texas rose from 256,276 to 325,809, a 27.1 percent increase. During the same period, the number of administrators rose from 18,531 to 25,130, a 35.6 percent increase (**Exhibit 41**).

EXHIBIT 41



Source: Texas Comptroller of Public Accounts and Texas Education Agency.

Texas would have to eliminate 1,571 administrative positions to reach the 1998-99 ratio again.

Based on a weighted average administrators' salary of $73,255 in 2008-09, the elimination of 1,571 positions would reduce district spending by $115.1 million annually in salaries alone; reduced benefit costs would raise the total savings substantially.

There may be justifiable reasons for the sharp relative increase in district administrative staffing. To determine whether this trend is justified, lawmakers should direct TEA to study the issue and determine the appropriate ratio of teachers to administrators.

4. ENSURE THAT TEACHER PREPARATION PROGRAMS PRODUCE HIGH-QUALITY TEACHERS.

Successful programs depend on reliable feedback, which in turn requires evidence-based measures employing the best techniques and tools available. Teacher preparation programs should use strategies and methods that evidence has shown lead to more effective teachers. Successful teacher preparation programs should be expanded and struggling programs should be replaced with more successful models.

The FAST research team has created value-added measures of student progress that adjust for factors that can influence performance, thereby allowing comparisons on a level playing field. Variations among campuses and districts, however, may not be as great as differences in performance from classroom to classroom on individual campuses.

TEA is collecting data and developing value-added metrics that will connect student performance to individual teachers. Once these data are available, TEA will use them to evaluate teacher preparation programs for first-, second- and third-year teachers. TEA should ensure that value-added measures are used in evaluating teacher preparation programs.

5. REDUCE BARRIERS TO ONLINE COURSEWORK.

The Texas Virtual School Network (TxVSN), administered by TEA, provides online courses for students. Districts can develop these courses and offer them through TxVSN, which makes them available to any student in Texas. To take a TxVSN course, a student must receive approval from his or her home district; TEA then facilitates the allocation of funding between the district offering the course and the student's home district.

One of the main benefits of the TxVSN is its ability to provide advanced and uncommon courses, including dual-credit courses offering both high school and college credit, to students in schools who might not otherwise have access to them. TxVSN could be improved by providing a broader array of courses and making student access easier. Online courses, available at any time of day, are especially useful to students who are considering dropping out and working during school hours. An expanded course list meeting state standards might contribute to an improved graduation rate in Texas, particularly if the Virtual School Network was expanded to offer full-time, comprehensive degree programs. Any expansion of online courses should ensure that online products are proven effective.

Another way to improve the TxVSN would be to introduce more accountability and transparency into the program. Currently, the accountability scores from a student who takes a TxVSN course are combined with the accountability scores from that student's home district. If students taking online courses are performing better or worse than students in traditional classrooms, it will not be apparent in the state's accountability measures.

Policymakers should implement changes to facilitate the expansion of online courses through the Texas Virtual School Network. Changes to consider include:

- requiring all school districts to allow their students to take classes through the Texas Virtual School Network (districts are not currently required to allow their students to take courses through the Virtual School Network);

- allowing students to participate in comprehensive, full-time online programs, meeting all state graduation requirements through TxVSN. A "Texas High School Diploma" could be awarded to students completing graduation requirements through TxVSN;
- increasing the per-student allotment a district receives for offering a course through the Virtual School Network. Currently, TEA grants a district $400 for each out-of-district student completing a TxVSN course it offers, when that course satisfies a curriculum requirement for graduation;
- expanding the number of dual-credit courses offered to students through TxVSN;
- identifying and eliminating technological or other barriers that prevent districts from participating in TxVSN, either as providers or receivers, such as district and student access to high-speed internet connections and computer hardware;
- allowing students and parents to sign up for TxVSN courses directly rather than requiring the student to go through his or her school district;
- assigning distinct accountability numbers to virtual schools that are operated by school districts and charter schools, rather than combining virtual school accountability data with data from the sponsoring district or charter school;
- allowing students to choose from a menu of courses that satisfy credit requirements; and
- evaluating the costs and benefits of allowing private providers to offer courses that meet state standards through the TxVSN.

6. REQUIRE PUBLISHERS TO PROVIDE TEXTBOOKS IN A FORMAT COMPATIBLE WITH COMMON ELECTRONIC READING DEVICES.

House Bill 4294, approved by the 2009 Legislature, allows districts to purchase electronic textbooks from a TEA Commissioner-approved list. Previously, districts were required to go through the same approval process as for printed materials. TEA is compiling the Commissioner's list which is intended to be a more efficient electronic textbook adoption process.

The costs of electronic textbooks can vary, with some publishers able to offer them at less than one-half the price of a printed book. Others provide texts for downloading for free. Many districts are using them, but none have completely eliminated printed textbooks. The prices of laptop computers and similar electronic devices are declining and costs can be further reduced through bulk purchasing.

If $80 per print textbook and 5 subject areas is assumed then total costs per student would equal $400. Savings from using electronic textbooks would depend on the type of license purchased from a publisher. A subscription publisher could charge about $50 annually per student. Adding in a $200 cost for an electronic device would amount to $400 per student for four years. Using open source materials would decrease subscription costs to perhaps $10 annually per student resulting in $240 per student over four years or 40 percent less than textbooks. And, unlike printed texts, the electronic material can be updated from year to year (or during the school year).

During the school year of 2008-09, the total amount for textbook orders was $210.4 million, while expenditures for electronic textbooks totaled $44.2 million. The Comptroller's office estimates that the state could save $84.1 million, or 40 percent of the amount money spent on textbooks, if districts chose to purchase only electronic textbooks. **Exhibit 42** shows a range of savings based on the percent of electronic textbooks purchased.

DATA AND REPORTING

The Texas Education Agency is updating its data reporting software. Some of the changes could result in data that could inform district and state policymaking. More uniform reporting of campus financial data, integration of workforce data into TEA's data holdings and integration of testing items that evaluate high-performing students would provide state policymakers with richer data for making decisions. In times of tight budgets, it makes sense to review all sources of revenue, such as district fund balances, and eliminate costly, outdated mandates such as the requirement to post publicnotices in daily newspapers.

EXHIBIT 42

REPLACEMENT OF TRADITIONAL TEXTBOOK WITH ELECTRONIC VERSIONS:SAVINGS ESTIMATE

SHARE	SAVINGS (IN MILLIONS)
100.0%	$84.1
50.0%	$42.1
25.0%	$21.0
12.5%	$10.5

Source: Texas Comptroller of Public Accounts.

7. STANDARDIZE THE REPORTING OF CAMPUS FINANCIAL DATA.

As noted elsewhere in this report, the FAST research team found the quality of reported campus financial data varies widely, making it difficult to accurately measure financial efficiency across campuses and to hold districts accountable for their campus allocations.

One cause of this variation among districts is the manner in which administration expenditures are allocated to campuses. The same administrative expense could be accounted for as a district central administration expense in one district and as a campus expense in another. In 2007-08, central administration expenditures ranged from $36 per pupil to $10,808 per pupil and from 0.5 percent to 58.5 percent of current operating expenditures, according to data reported to TEA by school districts.

TEA does not audit campus financial data and does not provide strict guidelines on how these data should be classified and reported.

Districts should submit campus-level financial data *under the same standards used for district-level data,* and TEA should establish uniform guidelines for districts to follow.

Reliable, standardized data makes for better analysis and decision-making. Improved accounting, such as student counts for *every* relevant spending category and consistent reporting of campus-level data, would allow for better assessments of per-student costs, providing a means to identify relatively high- and low-cost programs.

As part of TEA's new Texas Student Data System (TSDS), school districts will have the option of reporting academic data to the District Connections Database for real-time data reporting in a user-friendly dashboard format. TEA should expand this data collection tool to accommodate accurate campus financial data. TEA should then use its improved system to validate and audit campus financial data once received.

8. STUDY SCHOOL DISTRICT FUND BALANCES AND CONSIDER REDUCING FOUNDATION SCHOOL PROGRAM PAYMENTS TO DISTRICTS THAT MAINTAIN EXCESSIVE BALANCES.

District fund balances reported to TEA represent the difference between a district's assets and liabilities. TEA works with school districts to set an optimum fund balance for each.

In 2009, 591 school districts reported actual balances $1.3 billion above the TEA-estimated optimums.

District fund balances include both designated and reserved amounts as well as a remaining undesignated/unreserved portion. Unreserved, undesignated fund balances help to guarantee district cash flow, since local, state and federal funds arrive at different times throughout the year. Most Texas districts attempt to keep an average of two months of cash disbursements in reserve (an industry standard recommended by the Government Finance Officers Association).

Districts usually report their fund balances to TEA once each year in August. This provides an annual "snapshot" of school district balances. By examining district balances over time, TEA could determine whether district balances above the optimum are necessary. In addition, trend data for district balances could be used to create more accurate estimates of optimum fund balances.

By examining district fund balances more closely, the state may be able reduce Foundation School Program payments to districts that consistently remain above the optimum level.

9. INCLUDE QUESTIONS IN THE STATE OF TEXAS ASSESSMENTS OF ACADEMIC READINESS (STAAR) THAT EVALUATE HIGH-PERFORMING STUDENTS.

TAKS tests are tied to state curriculum standards for each grade known as the Texas Essential Knowledge and Skills (TEKS). They are designed *only* to test knowledge students are expected to have learned by the time they finish the grade during which they are being tested. This effectively puts a ceiling on our assessment of student performance.

Current TAKS tests thus do *not* provide a full picture of the capabilities of high-performing students, making it difficult to assess their academic progress.

The State of Texas Assessments of Academic Readiness or STAAR will replace the TAKS test beginning in the 2011-12 school year. Although the new tests are supposed to be significantly more rigorous than previous tests, they should be modified to include items testing knowledge and skills *beyond* grade level, to allow for a fuller assessment of student progress, particularly at high-performing campuses and districts. Since the accountability system is designed to ensure that students acquire grade-level knowledge and skills, any additional test items could be for information only, and not considered for accountability ratings.

10. INTEGRATE EDUCATION AND WORK FORCE DATA INTO TEA'S DATABASE.

State data systems should follow students (while maintaining privacy) through their entire academic careers, from elementary school through post-secondary education and into the work force.

Extensive student performance data already collected could be used to determine the outcomes of educational preparation at the secondary and post-secondary levels. In building the data system, policymakers should ensure it protects the privacy of individual students and workers.

Various data systems can connect to build a fuller picture of educational outcomes. TEA and the Texas Higher Education Coordinating Board collect and retain Texans' secondary and post-secondary educational information. The Texas Workforce Commission collects and retains information on quarterly earnings for all individuals covered by unemployment insurance. Florida, Maine and Kentucky already track individuals in this manner to help them make informed policy decisions.

As part of TEA's TSDS project, the agency is expanding its longitudinal database by including data for all students spanning from pre-kindergarten to the workforce. TEA plans to expand its database with job and wage information that will link all students to their post-educational careers. State law should require all relevant agencies to provide all student and employment data necessary to complete this project.

11. ALLOW SCHOOL DISTRICTS AND OTHER LOCAL GOVERNMENTS TO PUBLISH PUBLIC NOTICES ON THEIR WEBSITES.

School districts must publish notices of hearings on budgets and financial management reports, as well as an annual performance report. These notices are provided through newspaper advertisements that, even at a discounted rate, entail extra expense for school districts.

Such information instead could be provided through district websites at no additional cost. Additional and more specific notices could be provided through e-mail lists and alerts.

While the savings achievable through this change may seem minor, the cost of newspaper ads is not insignificant. Prices can range from a few hundred dollars in the smallest regional papers to thousands of dollars ($1,200 to $6,000) in larger cities such as Corpus Christi and major markets such as Dallas. Given typical publication requirements of two to three times per year, these expenditures add up to a noticeable budget item for school districts.

The Comptroller's office estimates that all districts in the state spent about $1.3 million for a single public notice in a newspaper in 2009. Depending on the number of future notices (one to three per year), districts could save between $332,000 and $4 million. **Exhibit 43** shows the estimated savings if the total amount spent was reduced between 25 and 100 percent.

EXHIBIT 43

ESTIMATED SAVINGS FROM ELECTRONIC POSTING OF LEGAL AND PUBLIC NOTICES (IN MILLIONS)

REDUCED SPENDING FOR PUBLIC NOTICES	ONE NOTICE PER YEAR	TWO NOTICES PER YEAR	THREE NOTICES PER YEAR
100%	$1.3	$2.7	$4.0
75%	$1.0	$2.0	$3.0
50%	$0.7	$1.3	$2.0
25%	$0.3	$0.7	$1.0

Source: Texas Comptroller of Public Accounts.

12. ASSIST SCHOOL DISTRICTS IN PLACING THEIR FINANCIAL RECORDS AND BUDGETS ON THEIR WEBSITES.

TEA should provide this assistance to encourage district transparency efforts. The agency should survey all districts to gauge their expertise and ability to place financial records online; develop standards for such records; and adopt rules encouraging transparency efforts.

Several obvious benefits accrue from online government financial records. Taxpayers can easily obtain a clearer understanding of the entity's financial health; its capacity to provide services; the spending preferences of its leaders and employees; and the costs associated with service improvements.

By making their purchases public, school districts also may benefit from lower costs, since vendors can see what districts pay for goods and services and may be willing to offer lower prices to gain their business. Readily available public information also reduces the staff time and expenses involved in public information requests.

Intangible benefits include greater citizen participation, increased trust and improved accountability.

The Texas Legislature has not yet required school districts to place this information online, although a few bills that would do so have been filed and debated in public hearings.[67]

TEA does not require school districts or charter schools to maintain websites and does not regulate the types of information posted on them. School districts and charter schools must comply only with student privacy laws such as the federal Family Educational Rights and Privacy Act (FERPA).[68]

The Comptroller established the "Texas Comptroller Leadership Circle" in December 2009 to honor school districts and other local governments meeting high standards of fiscal transparency. These standards include placing district budgets, financial records and checkbooks online for public perusal.[69]

To be eligible for Leadership Circle awards, districts report their efforts using a form available at www.texastransparency.org, with Comptroller staff verifying the resulting scores. Since the program's inception, 103 districts have received the Comptroller's Gold, Silver or Bronze certificates for placing financial documents online. This figure, however, represents just 8.3 percent of the state's districts and charter schools, indicating that more districts need incentives and assistance to improve their financial accountability.

13. UPDATE THE FAST RESULTS AS NEW DATA BECOME AVAILABLE, AND USE THEM TO IDENTIFY DISTRICTS THAT CONTINUE TO PRODUCE STRONG ACADEMIC PERFORMANCE IN A COST-EFFECTIVE MANNER.

The Comptroller's office, in consultation with TEA, should continue to refine and apply the FAST methodology to Texas education data. This would aid researchers in identifying districts that show consistently strong results over time. The two agencies also should begin planning to adapt the FAST methodology to the new STAAR testing system when it debuts in 2013.

14. USE FAST DATA TO TARGET REVIEWS BY THE LEGISLATIVE BUDGET BOARD'S SCHOOL PERFORMANCE REVIEW UNIT.

LBB has the staff and expertise needed to perform targeted reviews of school districts and the practices that make districts effective. They author comprehensive reviews of the operations of individual school districts with the goal of identifying effective and efficient operations.

The FAST tool can identify districts that produce large academic gains at a low cost, as well as those responsible for small academic gains at a high cost. The LBB Texas School Performance Review team should use FAST data to identify high-achieving/low-spending districts as well as high-spending/low-achieving districts. LBB should sharpen its focus to identify programs producing savings that offer a template for other districts to follow.

PURCHASING AND STUDENT SERVICES

There are many opportunities for districts to find cost savings through purchasing cooperatives and other shared-service arrangements. In the 2008-09 school year, Texas school districts reported about **$13 billion** in non-instructional expenditures. These districts could save an estimated **$130 million for every 1 percent** reduction in non-instructional costs achieved through smart purchasing practices.

15. TAKE ADVANTAGE OF CPA PROCUREMENT EXPERTISE TO ENSURE THAT SCHOOL DISTRICTS ARE GETTING THE BEST PRICES POSSIBLE.

Texas school districts and charter schools may not be taking full advantage of shared-service opportunities available in procurement. Texas has many purchasing cooperatives available to school districts and charters that are facilitated by education service centers, non-governmental organizations and government agencies. Purchasing cooperatives allow participants to increase their purchasing power by joining with other entities to negotiate lower prices on goods and services.

The Comptroller's Texas Procurement and Support Services (TPASS) Division administers the State of Texas Purchasing Cooperative and manages statewide contracts, while its Strategic Sourcing Division analyzes state purchasing to maximize its cost-effectiveness. TEA should work with these divisions to develop a procurement analysis system to analyze district purchases and identify opportunities for savings.

School districts also should take advantage of the low prices offered by the State of Texas Purchasing CO-OP. More than 1,000 Texas school districts are members of the Texas Association of School Boards' Local Government Purchasing Cooperative, also known as BuyBoard. School districts almost certainly see savings by using BuyBoard, but in some situations they could save more by using the State of Texas Purchasing CO-OP.

TPASS contacted vendors that have contracts through both the State of Texas CO-OP and BuyBoard and presented them with the specifications for three different buses that meet DPS safety requirements and requested pricing based on the vendor's contracts with both cooperatives. (**Exhibit 44**)

For small, mid-sized and large school buses, the State of Texas CO-OP offers better prices than BuyBoard. In fiscal 2010, Tex-

EXHIBIT 44

SCHOOL BUS PRICE COMPARISON, STATE OF TEXAS CO-OP VS. BUYBOARD

BUS DESCRIPTION		PRICE COMPARISON	
BUS TYPE	MANUFACTURER	STATE OF TEXAS CO-OP	BUY BOARD
14-Passenger	Thomas	$41,987	$45,209
47-Passenger	Thomas	74,460	76,522
71-Passenger	Thomas	79,203	81,384

Source: Texas Comptroller of Public Accounts.

as districts purchased 18 47-passenger buses and 35 71-passenger buses through the State of Texas CO-OP, saving $113,000 compared to BuyBoard prices.

The State of Texas CO-OP does not necessarily offer better prices on all goods and services, but school districts should routinely compare its prices and make procurement decisions that maximize savings.

In the 2008-09 school year, Texas school districts reported about $13 billion in non-instructional expenditures. These districts would save an estimated $130 million for every 1 percent reduction in non-instructional costs achieved through purchasing cooperatives.

16. ENCOURAGE SHARED-SERVICE ARRANGEMENTS.

Public education shared service arrangements refer to districts combining resources with other governmental entities to provide services more efficiently or effectively. Many large districts do not participate in these arrangements because they lack strong incentives to do so; for the most part, they can already take advantage of economies of scale. Even in situations in which shared-service arrangements *could* provide modest savings, large districts often forgo entering into such arrangements to maintain sole authority over their programs.

Districts can save money by taking advantage of economies of scale and participating in shared service arrangements. Many districts could benefit from contracting with an outside provider for back office functions, such as payroll, budget preparation, financial accounting, accounts payable, retirement services, bank reconciliation, PEIMS preparation and human resources, as well as training and technical assistance. Education Service Centers (ESC) make these services available to school districts. The Region 17 ESC, for example, provides a range of business services from training and technical support to complete back office operations. The ESC estimates that districts can save $20,000 a year by using the ESC for all of their back office needs.

In addition to shared business services, there are also shared curriculum services available to school districts. Nineteen of the state's 20 ESCs partnered to develop an interactive curriculum development and management system called CSCOPE. CSCOPE provides districts with access to TEKS-aligned curriculum, developed by Texas educators. CSCOPE is a low cost resource that is available to all districts. One school district estimates that using CSCOPE saves between $25,000 and $35,000 a year.

School districts can also take advantage of program evaluation shared service arrangements provided by regional education service centers. These services allow school districts to identify effective programs and prioritize their spending based on proven success.

Some larger districts have full-time program evaluation staff. Many, however— particularly small districts and those with limited resources — find it difficult to obtain and track the data needed to evaluate their programs. These districts should use evaluation assistance from the state's regional education service centers. With these data, districts can make better decisions about academic and financial policy while maximizing their limited resources.

TEA has suggested that the state provide incentives to encourage large districts to enter into shared-service arrangements. Recently, Texas Governor Rick Perry proposed an incentive that would provide districts with rewards equal to 10 percent of the savings realized from shared-service arrangements.

In the 2008-09 school year, Texas school districts reported about $13 billion in non-instructional expenditures. These districts would save an estimated $130 million for every 1 percent reduction in non-instructional costs achieved through shared services.

17. CREATE AN EFFICIENT STRATEGY FOR ORGANIZING TRANSPORTATION COOPERATIVES.

In the 2008-09 school year, Texas school districts spent $1.1 billion on student transportation.

Multiple districts often provide transportation services in the same county or metropolitan area; 20 districts do so in Harris County, for instance, as do 15 in Bexar County, 14 in Dallas County and 16 in Tarrant County. In these areas, districts may be able achieve greater efficiencies by providing transportation cooperatively.

In many counties, by contrast, only one school district provides transportation services. This is particularly common in the counties surrounding San Angelo, Amarillo, Lubbock and Midland. Such geographically isolated districts may not benefit from participating in a traditional transportation cooperative with a shared vehicle fleet but they may benefit by participating in an arrangement that consolidates some of the administrative functions, such as routing, maintenance and fuel purchase, that are associated with student transportation.

Fourteen school districts in Dallas County obtain student transportation services from Dallas County Schools (DCS), a special-purpose school district/government agency organized as an independent school district, with a superintendent, board of trustees and taxing authority. School districts in Bowie County rely on a similar organization, Bowie County Schools, for transportation. Districts in these counties report transportation expenditures at least 20 percent lower than in similar districts. Some school districts in Lubbock and Potter counties use private vendors for student transportation, also reporting transportation expenditures at least 20 percent lower than in similar districts.

It should be noted that special-purpose districts such as DCS use tax revenues to fund some of their operations; private providers must fund their operations entirely out of the fees they charge. DCS, for example, collected $8.4 million in property taxes in fiscal 2009, about 11 percent of their expenditures for that year.

In 2006, TEA recommended that Texas districts participate in transportation cooperatives. TEA, in consultation with the Comptroller's TPASS division, should conduct a study to determine the most efficient means of organizing them. This study should include as a cost any public funds used to support the service, including property taxes for special-purpose school districts and sales taxes for ESCs and local transit authorities.

Several viable strategies can be used to reduce transportation costs, including private vendors, ESCs, special-purpose school districts and county/metropolitan transit authorities. TEA should provide school districts with specific guidance on such options.

FACILITIES

In 2008-09, Texas spent **$8.5 billion** on school construction. Debt service was our schools' fastest-growing category of expenditure during the last decade.

By improving construction practices and making more efficient use of existing classroom space, Texas school districts could reap substantial savings. A 1 percent reduction in construction costs would have saved Texas **$85 million in 2008-09**.

18. USE ARCHITECTURAL PROTOTYPES IN NEW CONSTRUCTION.

Architectural prototypes help contain construction costs by ensuring consistent school design. Floor plans can be based on optimal instructional design and replicated where possible.

In fast-growing areas, multiple schools often are constructed with funding from the same bond issue, creating obvious opportunities for such replication. Reusing prototype designs saves time and money on design, typically reducing architectural fees by an amount equal to one to two percentage points of total construction costs. Districts also can save on construction, as the use of prototype designs allows construction firms to provide better cost estimates and reduce purchases of surplus materials.

The Comptroller's office estimates that about 6 percent of construction costs are attributed to architect fees. **Exhibit 45** shows a range of savings based on the percent of future construction using architectural prototypes. For example, if 50 percent of future construction utilized prototypes, $42.5 to $85 million could be saved. The Comptroller's office estimates that districts could save about 1 percent to 2 percent of all construction costs. These estimates do not include savings from reductions in annual debt service throughout the bond issue's life.

Districts would still have to work with architects to adapt prototypes to their specific programmatic and site-based requirements.

EXHIBIT 45

SAVINGS FROM ARCHITECTURAL PROTOTYPES (IN MILLIONS)

SHARE OF FACILITIES UTILIZING PROTOTYPES	1% ARCHITECT FEE SAVINGS	2% ARCHITECT FEE SAVINGS
100%	$85.0	$169.9
50%	$42.5	$85.0
25%	$21.2	$42.5
15%	$12.7	$25.5
5%	$4.2	$8.5

Source: Texas Comptroller of Public Accounts.

19. MAXIMIZE THE USE OF SCHOOL FACILITIES, ADOPT PRACTICES THAT REDUCE THE NEED FOR SCHOOL CONSTRUCTION AND REQUIRE SCHOOL DISTRICTS TO DEMONSTRATE A NEED FOR NEW FACILITIES.

Some school districts already share facilities and other infrastructure with other local governments, but such efforts depend on local policymakers working together to ensure the efficient use of tax dollars. The state has established regional planning bodies in areas such as transportation and water to coordinate local government activities. These could be used as a model upon which to establish "facility planning regions" to facilitate cooperation between local governments and school districts.

TEA does not have an inventory of school facilities across the state and school districts are not required to provide them when seeking state assistance in financing facility construction. TEA should work with school districts to develop comprehensive facilities construction and usage plans that reduce the need for new construction and maximize the usage of existing space.

As part of this effort, TEA should require districts to provide a facilities inventory any time a district seeks state approval to issue debt for facilities construction, and should approve all construction financed with debt-service assistance from the state. School districts should pursue new construction projects only after investigating opportunities to coordinate facilities use and construction with other local governments.

Public school districts could generate additional revenue by making their facilities available for rent outside of school hours; community colleges could save on construction costs by renting facilities from public school districts rather than building new space.

For each school not built, the Comptroller conservatively estimates a savings of $15 million. Sharing facilities also could result in other savings, such as reduced debt, utility and grounds maintenance costs.

20. TAKE ADVANTAGE OF OPPORTUNITIES TO MANAGE ENERGY COSTS MORE EFFECTIVELY.

School districts in locations with deregulated electric utility markets should take advantage of their ability to purchase energy at reduced rates through electric utility aggregators. Like purchasing co-ops, electric utility aggregators pool the demands of participating districts to negotiate for favorable prices.

The Region 2 Education Service Center, for instance, administers an energy consortium that pools the energy demands of participating districts for purchase through utility aggregators. One Texas aggregator, Energy for Schools, estimates that districts typically save about two cents per kilowatt-hour, or about 20 percent of average electricity rates.

Districts also should take advantage of opportunities to manage costs by reducing energy consumption. The Comptroller's State Energy Conservation Office (SECO) provides technical support and energy management services to public school districts, colleges, universities and nonprofit hospitals. It also provides on-site teacher training on energy awareness projects and energy education.

SECO also administers the LoanSTAR revolving loan program to finance energy retrofits in schools and other public buildings, such as the installation of energy-efficient lighting systems. These low-interest loans can be repaid from savings realized from the projects they fund. SECO estimates that their facility-specific loans result in energy-efficiency savings of about 20 percent.

SECO also offers energy-efficiency grants of up to $35,000 to fund smaller-scale school programs. In June 2010, SECO awarded 27 Texas districts a total of $885,269 in grants for renewable energy generation, solar film for windows, advanced electric utility metering technology and other energy-saving upgrades.

It is difficult to estimate energy savings for school districts because they only report total utility expenditures to TEA, including gas, water and sewer service as well as electricity. In the 2008-09 school year, districts reported $1.36 billion in utilities spending in function codes directly related to education service delivery.

Based on a sample of publicly available district utility usage reports, we assume that energy represents between 65 and 75 percent of total utility expenditures. Based on this assumption, every 1 percent of energy savings represents statewide savings of between $8.8 and $10.2 million.

TECHNICAL APPENDIX 1: FAST ACADEMIC PROGRESS METHODOLOGY

Legislation establishing the FAST report requires the Comptroller to evaluate school resource allocation by integrating existing academic and financial data.

Economists perform similar exercises to study the productivity of businesses and industries through various modeling techniques. These models study the relationship between "inputs" — the goods and services that go into a product — and "output" — the product itself. A drink manufacturer, for instance, might combine water, fruits and sweeteners with labor and machinery to produce a juice drink sold at grocery stores.

In education, the inputs combine to form a more elusive product. Financial contributions to education, such as teacher salaries and textbook purchases, can be measured in annual dollar expenditures. These inputs, however, combine to produce student achievement, which is measured by test scores rather than currency.

To complicate matters further, the learning process is cumulative. Achievement in any grade reflects the achievements of prior grades. This represents another challenge: evaluating the impact of one year's worth of educational resources requires an assessment of *that year's* academic progress, rather than the accumulated achievement of previous years.

Furthermore, numerous factors that influence student achievement are beyond the school's control, such as natural aptitude, parental involvement, family income and community values.

The FAST study attempted to resolve these measurement issues by using what is often called a *value-added model* (VAM). Instead of measuring levels of student achievement, VAMs measure *growth* in achievement by controlling for the varying characteristics of students, campuses and districts to determine the annual impact of each factor.

Adjusting for such characteristics puts each student, campus and district on equal footing for comparisons across the state. For each school year, each student receives a score representing how much he or she "learned" in relation to students throughout the state; each campus receives a score representing its contribution to student learning as measured against campuses statewide, and each district receives a score representing its contribution to student learning as measured against districts statewide.

House Bill 3, which directed the Comptroller to conduct the FAST analysis, seeks only campus and district-level results. This report, therefore, does not examine progress by classroom and can draw no conclusions about individual teacher performance.

FAST MODEL: FUNDAMENTALS

The FAST project's VAM, the Academic Progress Model, was used to measure annual academic growth and produce Academic Progress scores in math and reading for each campus and district included in the study. FAST researchers then combined progress in math and reading to create a composite academic progress score.

Like most such models, the FAST model uses statistical methods based on *linear regression*. Linear regression analysis allows researchers to quantify relationships between an item of interest and the factors that affect or are associated with it.

For example, agricultural researchers might use regression analysis to study the relationship between crop yields and rainfall. The regression model might account for other factors associated with crop yields, such as average temperature and soil composition. These other factors are known as "controls" that help isolate the relationship between crop yields and rainfall.

The objective in this case is to measure only what students learned in a given year. The model achieves this by controlling for factors selected based on research and consultation with experts and peer reviewers. By including these control factors, their influence is effectively removed from the Academic Progress scores:

- prior-year TAKS math score
- prior-year TAKS reading score
- gender
- English proficiency
- ethnicity
- family income (measured by those receiving free or reduced-price lunches)
- Special Education status
- Gifted and Talented program status
- language of TAKS administration (English or Spanish for grades 4-6)
- grade level

The model also includes "interaction terms," or other control variables made from combinations of the factors above.

INTERPRETATION

Appropriate conclusions can be drawn from the results only by carefully understanding what is being estimated. This report's Academic Progress percentiles represent math or reading growth relative to campuses or districts statewide, with adjustments for fair comparison that put all campuses or districts at the same starting line. These measures are presented as three-year averages of annual progress, to reduce volatility. Annual progress is calculated for each of the three years and then averaged. Scores are reported in percentiles ranging from zero to 99, with 50 as both mean and median.

Scores have the same interpretation as any percentile number. A campus Math Progress score of 60 means that during the last three school years, the campus's students showed as much or more progress on math TAKS than 60 percent of campuses statewide. Control variables adjust the results to isolate the campus contribution. In other words, a campus's Math Progress score attempts to remove student socioeconomic factors that may affect learning.

Annual Progress scores for districts can be interpreted similarly, as representing the amount of learning made by the district's students, and controlled for the socioeconomic characteristics of each student in the district. A Composite Academic Progress Percentile (CAPP) is calculated as the average of math and reading progress. This represents a summary academic rating with equal weights given to math and reading.

A campus CAPP of 60, for instance, means that during the last three school years, the campus's students showed as much or more progress in math and reading combined than 60 percent of campuses statewide. Similarly, a district Composite Academic Progress Percentile of 60 means that during the last three school years, the district's students showed more progress in math and reading combined than 60 percent of districts statewide.

DATA CONSIDERATIONS

TEA provided all student-level data used in this analysis to the UT-Dallas Education Research Center. Student-level data came from TEA's PEIMS; campus and district-level data are from TEA's annual AEIS reports.

The study determined which students to include in the analysis based on advice of the Technical Advisory Team and others (see Part 1 (Executive Summary) for a list of the technical team members). The model included all students with two consecutive years of TAKS scores. Other students were included if they:

- were included in TEA's "Campus Accountability Subset";
- took either the English or Spanish versions of the regular TAKS reading/language arts or math test;
- had valid indicators for race/ethnicity, eligibility for free or reduced-price lunches, Limited English Proficiency (LEP) status, Special Education status or Gifted and Talented status, and were gender-identified in the current year;
- were Special Education students who took either TAKS-Accommodated or TAKS-Modified; or
- took TAKS Linguistically Accommodated Testing.

Students who took TAKS-Alternative tests were not included, due to significant differences in these versions of the test.

The study also followed rules for including campuses and districts. Only campuses and districts that received a Texas Accountability System rating were included; those without TAKS scores were excluded, as were any campuses or districts with fewer than 10 students.

FAST MODEL: TECHNICAL DESCRIPTION

The FAST Academic Progress model was used to measure annual academic growth and produce Academic Progress Scores and Percentiles in math and reading for each campus and district in the study. This model was derived from a model developed by the Dallas Independent School District that has been evaluated extensively over the years.[70]

Academic literature offers a variety of alternative VAMs, some focused on estimating teacher effects instead of, or in addition to, campus effects.[71] The FAST model is based on the Dallas ISD model because of its long track record, its Texas origins, its use of a number of TEA data elements and its use in TEA's own assessment approaches.

The FAST model uses statistical methods based on linear regression, specifically a regression technique called mixed-modeling methodology, to accommodate students, campuses

TEXAS PROJECTION MEASURE

The Texas Education Agency's state accountability system uses the Texas Projection Measure (TPM) to estimate how students may perform on future tests. The TPM is not a "growth measure" that gauges how much a student has learned the prior year. Instead, it considers whether a student is likely to pass the TAKS in the next "benchmark" grade, the next grade in which TAKS tests are administered (grades 5, 8 and 11, and grade 7 for writing only).

In 2009, Texas received federal approval to use the TPM in the Adequate Yearly Progress (AYP) calculations required by the No Child Left Behind act.[72] TPM "predicted-to-pass" numbers supplement actual TAKS pass rates to help determine state accountability ratings. TPM is not a double-edged sword, though, in that "predicted-to-pass" numbers can only improve campus or district accountability ratings, while "predicted-to-fail" numbers cannot count against their ratings.

The TPM is based on three pieces of data:

- a student's current TAKS performance,
- his or her previous TAKS performance, and
- TAKS scores of all students at that student's campus.

For example, TAKS Reading test scores from current fifth-grade students are used to predict their eighth grade scores.

Both the Comptroller's Annual Progress Model and TPM employ reading and math test scores, and both can be used to make separate student predictions for each subject. The TPM also can make predictions for science, social studies and writing based on current-year scores only. To determine if a student's projected score meets the standard in the projected grade, the score is compared with the current "Met Standard" score reported for the projected grade and subject.

COMPARISON WITH FAST MODEL

The FAST Annual Progress model shares similarities with TEA's Texas Projection Measure. The two models, however, diverge in key areas to achieve different objectives. The FAST model can be used to measure student growth. By contrast, the TPM *predicts* future student achievement.

Although both models started with the same basic model from Dallas ISD, the FAST model built upon the base, while the TPM model simplified it.

All three techniques use a hierarchical linear modeling framework to model student achievement as a function of prior achievement, as measured by individual student test scores. The Dallas and FAST models, however, both control for student characteristics, while the TPM model does not. The TPM model only controls for test score variability between students and campuses; the Dallas model controls for these effects as well as student and campus covariates that influence test scores. FAST drops the campus covariates, but keeps the student covariates and adds controls for variation among school districts.

Results from each model have a distinct interpretation to reflect the model's measurement objectives and design. The TPM model is designed only to predict test scores used for projecting future achievement levels. Its results of interest are the predicted student test score values, or "fitted" values, from the model. Since the FAST model is designed to measure annual achievement growth, its results of interest are the campus- and district-level residuals, known as "random effects" estimates.[73]

and districts.[74] This approach measures academic growth by modeling current student achievement on TAKS reading or mathematics, known as the "post-test," by how the student performed in the previous year ("pre-test"), and by other characteristics of students. These other factors, called "control" variables or "covariates," were modeled to remove their influence on the Academic Progress Scores.

Dallas ISD's assumptions and methodology were modified to accommodate advances in computational technology. The Dallas ISD model uses a two-stage process, with the first stage adjusting for fair comparisons of all students and the second stage separating out the contributions of students, campuses and districts to academic growth. The FAST model, by contrast, consolidates the two stages into one incorporating students, campuses and districts, while making "fairness" adjustments for equal comparison. This technique is known as *multi-level, random intercepts mixed modeling*, with students, campuses and districts each represented by a level.

The FAST methodology uses both a three-level campus model and a two-level district model. The first level represents students, and the next levels represent districts and/or campuses. Each level has its own equation and the components of each equation depend on the others. To produce estimates for each model, the levels were algebraically combined into a single equation called the mixed model. Estimates then were produced from statewide TEA data, with effects partitioned between districts, schools and individual students.

The first level in both models has each student's post-test score regressed on his or her pre-test score, and any characteristics important to maintaining fairness. For interpretation and numerical stability, the level-one variables are grand-mean centered. The second and third levels only include random intercepts and do not include any covariates. This allows for the clustering of students within campuses, and campuses within districts, so that only the campus or district effect is measured.

The district model includes a second level that predicts the district effect as the residual over the level-one variables. The campus model includes second and third levels, which together provide value-added predictions at the campus level.

CAMPUS MODEL

The campus model uses the notation of Raudenbush and Bryk (2002), where the student-level math or reading TAKS outcome is:

$$Y_{ijk} = \pi_{0jk} + \sum_{p=1}^{P} \pi_{pjk} a_{pjk} + e_{ijk},$$

i = 1,…,m students (m varies by year)
j = 1,…,n campuses (n varies by year)
k = 1,…,o districts (o varies by year)
p = 1,…,34 student-level variables

Y_{ijk} = student TAKS reading or math score
π_{pjk} = student-level coefficients
a_{pjk} = student-level control variables
e_{ijk} = student-level random error, with $e_{ijk} \sim N(0;\sigma^2)$

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 = Math pre-test score
a_2 = Math pre-test score squared
a_3 = Reading pre-test score
a_4 = Reading pre-test score squared
a_5 = African American (1 if African American)
a_6 = Hispanic (1 if Hispanic)
a_7 = Limited English Proficient (1 if LEP)
a_8 = Gender (1 if Male)
a_9 = Free or Reduced Lunch (1 if on Free or Reduced-Price Lunch)
a_{10} = African American x LEP
a_{11} = Hispanic x LEP
a_{12} = African American x Gender
a_{13} = Hispanic x Gender
a_{14} = African American x Free or Reduced-Price Lunch
a_{15} = Hispanic x Free or Reduced-Price Lunch
a_{16} = LEP x Free or Reduced-Price Lunch
a_{17} = Gender x Free or Reduced-Price Lunch
a_{18} = African American x Gender x Free or Reduced-Price Lunch
a_{19} = Hispanic x Gender x Free or Reduced-Price Lunch
a_{20} = LEP x Gender x Free or Reduced-Price Lunch
a_{21} = Spanish-language test current, grades 4-6 (1 if Spanish TAKS)

a_{22} = Spanish-language test prior-year reading, grades 4-6 (1 if Spanish TAKS)
a_{23} = Spanish-language test prior-year math, grades 4-6 (1 if Spanish TAKS)
a_{24} = Spanish-language test prior-year reading, grades 4-6 x Reading pre-test score
a_{25} = Spanish-language test prior-year math, grades 4-6 x Math pre-test score
a_{26} = Gifted class (1 if Gifted)
a_{27} = Special education class (1 if Special Education)
a_{28}–a_{34} = Grade binaries for grades 5 – 11 (reference grade is 4)

The campus-level is:

$$\pi_{0jk} = \beta_{00k} + r_{0jk},$$
$$\pi_{ljk} = \gamma_{l00}, \qquad l = 1,\ldots,P$$

β_{00k} = campus-level coefficients
γ_{l00} = non-randomly varying intercepts
r_{0jk} = campus-level random effect, with $r_{0jk} \sim N(0;\ \tau_2^2)$

The district level allows for the clustering of campuses within school districts:

$$\beta_{00k} = \gamma_{000} + \mu_{00k},$$

γ_{000} = non-randomly varying intercept
μ_{00k} = district-level random effect, with $\mu_{00k} \sim N(0;\ \tau_3^2)$

DISTRICT 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:

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

The district level is:

$$\pi_{0k} = \gamma_{00} + \mu_{0k},$$
$$\pi_{lk} = \gamma_{l0}, \qquad l = 1,\ldots,P$$

γ_{00} = non-randomly varying intercept
γ_{l0} = non-randomly varying intercepts for student covariates
μ_{0k} = district-level random effect, with $\mu_{0k} \sim N(0;\ \tau_2^2)$

DIAGNOSTICS, ESTIMATION AND RANDOM EFFECTS

With more than 200,000 observations for each grade and year, the statistical power of the model is very strong, making statistical tests less practical than estimates with fewer observations. In reviewing the pattern of significance, the focus was more on residual diagnostics from the different levels of the model. In particular, the model assumes normality of the residuals at each of the three levels. This assumption was explored using the (standardized) estimated residuals at level one, and the (standardized) empirical Bayes residuals at levels two and three.

The model was estimated using maximum likelihood. The (unadjusted) campus effects, r_{0jk}, and district effects, μ_{0k}, were predicted based on estimated variance components. These campus and district effects were constructed to minimize the expected mean-squared error and were reliability-weighted composites of, essentially, the ordinary least squares estimate for the relevant group (campus or district) and an estimate for the overall model.[75]

These calculated effects were best linear unbiased predictions, often termed empirical Bayes residuals, and formed the basis for estimating campus (or teacher) effects in most of the models previously cited. The unadjusted campus effect is relative to its district. The campus effect was summed with the district effect to compare across all campuses. Standard errors were also calculated for both the (adjusted) campus and district predictions.

TECHNICAL APPENDIX 2: FAST SPENDING INDEX METHODOLOGY

Legislation establishing the FAST report requires the Comptroller to evaluate school resource allocation by integrating existing academic and financial data.

In comparing districts, however, it is important to note that these data do not take into account the different costs of providing educational services in various Texas communities. The cost of education in any given school district is a function of the outcomes produced, the prices of inputs, the characteristics of students and parents and other features such as school district size.

Schools that operate in areas with a high cost of living, for instance, generally face higher costs, as do those serving more challenging student bodies. Large school districts can rely on economies of scale to reduce their per-pupil education costs much more than small districts.

To fulfill the requirements of H.B. 3, the FAST project must identify efficient school expenditure practices that advance student achievement. The existing data are informative, but lack the nuance needed for this analysis. For this report, the research team used these indicators to create new cost measures.

In light of the widely varying cost environments in which school districts function, direct financial comparisons among Texas districts would not be fair or appropriate. Instead, this study 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.

INPUT PRICES

The education sector is labor-intensive, requiring professional staff such as teachers and administrators as well as support staff such as clerks, educational aides and maintenance workers.

To measure the price of professional staff, the FAST study used an extension of the National Center for Education Statistics' Comparable Wage Index (CWI), which measures regional variations in the prevailing wage for college graduates. In other words, the CWI accounts for higher wages in areas with higher costs of living or that lack important amenities.

For example, if Dallas engineers receive 15 percent more than the average Texas engineer, and Dallas nurses receive 15 percent more than the average nurse, the CWI predicts that Dallas teachers and principals also should be paid 15 percent more than the average teachers and principals.

The study also adapted the CWI methodology to measure the price for non-professional staff using the High School Comparable Wage Index (HS CWI).

SCHOOL DISTRICT SIZE

Previous research has demonstrated that school district enrollment is a primary cost factor in public education. Districts with small enrollments face much higher per-pupil costs than larger districts, most notably due to administrative and classroom costs being spread across smaller student bodies. The Texas school finance formula recognizes the inherent cost disadvantage smaller districts face by providing them additional revenue.

Districts encompassing large geographic areas also may face higher costs because their students and schools are widely dispersed, entailing much higher transportation costs. For this reason, the state provides additional funding to small districts covering more than 300 square miles.

To reflect these factors, the FAST analysis includes two measures of school district size — the number of students in fall enrollment and the number of square miles in the district.

STUDENT NEED

To capture variations in student needs that lead to cost variations, the FAST study considered district and campus shares of students who were:

- high-needs special education students,
- other special education students,
- limited English proficient (LEP) and
- economically disadvantaged.

All four cases require additional resources per student, including smaller required class sizes and specialized teachers and supplies.

In all cases, the study employed data averaged from the 2007, 2008 and 2009 school years.[76] Using a three-year average reduces the influence of one-time events. **Exhibit 46** describes the cost factors used in this analysis.

EXHIBIT 46

DISTRICT COST FACTORS

	MEAN	MINIMUM	MAXIMUM
INPUT PRICES			
COMPARABLE WAGE INDEX	1.23	0.94	1.58
HIGH SCHOOL COMPARABLE WAGE INDEX	1.18	0.95	1.47
SCHOOL DISTRICT SIZE			
ENROLLMENT	3,783	16	199,524
SQUARE MILES	263	5	3,822
STUDENT NEED			
PERCENT LIMITED ENGLISH PROFICIENT	8.1	0.0	50.0
PERCENT ECONOMICALLY DISADVANTAGED	55.5	0.0	100.0
PERCENT HIGH NEEDS SPECIAL EDUCATION	3.7	0.0	70.9
PERCENT OTHER SPECIAL EDUCATION	7.5	0.0	33.4

Sources: Texas Education Agency, National Center for Education Statistics, Bureau of Labor Statistics, U.S. Census Bureau and Texas Comptroller of Public Accounts.

IDENTIFYING FISCAL PEERS

Information from research and stakeholders suggests that district and campus resource allocation should be evaluated through a number of lenses and using a variety of performance measures.

The FAST study achieves this by grouping each district and campus with up to 40 others that are similar to it with respect to an array of significant cost factors. The methodology matches most districts and campuses with fiscal peers using a well-regarded research strategy called propensity score matching.

PROPENSITY SCORE MATCHING

The FAST study uses propensity score matching, a well-regarded research strategy, to identify fiscal peers for each school district. Propensity score matching is used to construct comparison groups from data observed outside of the experiment and beyond the control of the researchers.[77] For example, if you want to know the effect of a jobs training program, you must compare program participants to nonparticipants who are as similar as possible to be confident that differences in employment outcomes are the result of the training.

Propensity score matching identifies the best available control group (the comparison group) for any given member of a group. For the FAST project, propensity-score matching was used to identify up to 40 peers for each district that are most similar with respect to the common determinants of school district cost — input prices, school district size and student demographics.

Because each school district needed a control group, and the only possible members of that group were other Texas school districts, there are no "treatment" or "control" districts to compare against each other for this project. Instead, school districts were divided into subgroups based on their core operating expenditures per pupil.[78] Each subgroup was assigned to a treatment group and a probit regression model was used to calculate the corresponding propensity scores (see the "District Level Matches" section for more).

For each treatment school district, all of the school districts (treatments and controls) with propensity scores within a two-standard-deviation band were identified around the district's own propensity score. Then up to 40 districts with the closest propensity scores (i.e. the 40 nearest neighbor matches) that were also within the band were designated as fiscal peers for that school district.

The research team also identified fiscal peers for individual schools using a similar methodology and campus-level data. Any differences between the district-level and campus-level analyses were driven by differences in data availability and by the need to reflect wide variations in organizational structure among elementary, middle school and high school campuses.

DISTRICT-LEVEL MATCHES

Most Texas school districts have many plausible fiscal peers. Some, however, are unusual enough in at least one cost dimension to limit their number of potential peers. For example, 10 Texas districts had a three-year average share of special education students exceeding 39 percent. No other district had a share exceeding 28 percent. Arguably, then, these 10 districts should be matched only with one another. Similarly, while most school districts serve a full range of grade levels, some have no high school and others have no elementary schools. It seems most appropriate to match these restricted grade-level districts only to districts offering similar grade ranges.

Still another group, districts in the alternative education accountability system serving at-risk youth, seems to match poorly with

other K-12 districts. Finally, a handful of districts in Texas are very large — more than 1,000 times larger than some other districts. It seems inappropriate to match a very large district with a very small one, no matter how similar they are in other respects.

To accommodate these unusual cases, the districts were stratified before applying the propensity score matching technique (**Exhibit 47**). Each district was assigned to one of seven strata based on various student population characteristics, and propensity score matching was used as needed to identify fiscal peers within each stratum. If the stratum contained no more than 41 districts, then all districts in the stratum were designated as fiscal peers, and propensity score matching was not used.

The 12 smallest K-12 districts — those with no more than 100 students on average over the last three years — comprised their own stratum and were matched accordingly. It seems unreasonable, however, to exclude possible matches with slightly more than 100 students; the best possible match for a district with 99 students could be a district with 101 students, for instance. Therefore, districts with 100 or fewer students were matched with any K-12 district having fewer than 120 students. Twenty-three K-12 districts had an average of fewer than 120 students in fall enrollment, so each of the smallest K-12 districts had 22 fiscal peers.

The 16 largest Texas school districts — those with an average of more than 50,000 students over the last three years — also comprised their own stratum. These districts also were matched with any district having at least 40,000 students. Therefore, each of the largest districts also had 22 fiscal peers.

The smallest stratum contained 10 school districts specializing in special education (i.e. those with at least a 39 percent share of special education students). Eight of these 10 districts also were Alternative Education Accountability (AEA) charter school districts. No other districts had a special education share within 10 percentage points of these districts, so they represent an independent stratum, giving each nine fiscal peers.

AEA districts serve students at high risk of dropping out and are subject to different accountability standards. TEA classifies 20 K-12 districts with less than a 30 percent share of special education students as AEA districts. These 20 charter school districts represent an independent stratum in which each school has 19 fiscal peers.

Similarly, 41 school districts have no elementary grade levels. All but one of these are charter school districts and most are AEA districts. All of the districts in this stratum were designated as fiscal peers, so each had exactly 40 fiscal peers.

The largest stratum, and the primary focus of this analysis, consists of districts serving both elementary and secondary school children. Propensity score matching was used to identify fiscal peers for each of the districts in this stratum, "All Other K-12." To estimate the propensity scores, districts were divided into metropolitan and nonmetropolitan districts and then subdivided into quintiles based on core operating expenditures per pupil.[79] By grouping campuses and districts by metropolitan status, and then by core operating expenditures per pupil, the designated fiscal peers are ensured to be similar to one another with respect to the two primary determinants of educational cost, economies of scale and geographic variations in labor costs.

EXHIBIT 47

TEXAS SCHOOL DISTRICTS BY STRATUM

	NUMBER OF TRADITIONAL SCHOOL DISTRICTS	NUMBER OF CHARTER SCHOOL DISTRICTS	TOTAL NUMBER OF DISTRICTS	UNIQUE PEER GROUPS
ALL OTHER K-12	941	40	981	769
NO HIGH SCHOOL GRADES	59	91	150	77
NO ELEMENTARY GRADES	1	40	41	1
AEA K-12	0	20	20	1
VERY LARGE K-12	16	0	16	1
VERY SMALL K-12	12	0	12	1
SPECIAL EDUCATION DISTRICTS	0	10	10	1
TOTALS	1,029	201	1,230	851

Note: "Very small" K-12 school districts have no more than 100 students. "Very large" K-12 districts have more than 50,000 students. Alternative Education Accountability (AEA) school districts serve both elementary and secondary grade levels.
Source: Texas Comptroller of Public Accounts.

Each of the 10 subgroups then was assigned to a treatment group. The research team estimated the corresponding probability model using the eight cost factors, their squares and selected interaction terms as control variables.[80] Regardless of size, all non-AEA K-12 school districts are eligible matches and included in the set of possible control schools for each of the 10 subgroup analyses. Therefore, while there were 981 possible treatment districts in the stratum, there were 1,009 observations for each regression model.[81]

For each model, a corresponding distribution of propensity scores was calculated. These 10 sets of propensity scores were used to identify fiscal peers for all but the smallest and largest of the state's K-12 school districts. The research team identified the 40 school districts with the nearest propensity scores to that of each treatment district. Thus, propensity scores from model 1 were used to find the nearest neighbors for districts in the first metropolitan quintile, while the propensity score from model 10 identified the nearest neighbors for the districts in the fifth nonmetropolitan quintile.

It is important to note that each district's peers were drawn from the other 1,008 districts. Each district can have a unique peer group, so that the peer groups of a particular district's peers will not necessarily be the same. **Exhibit 48** presents descriptive statistics on those propensity scores, while **Exhibit 49** illustrates Spearman correlations among them.

Spearman correlations emphasize consistency in ranking across various score distributions, and therefore are a better metric for these comparisons than the more familiar Pearson correlations. Because the propensity scores were used for nearest-neighbor matching, it did not matter if the scores ranked districts from highest to lowest or from lowest to highest, so the sign of the correlation coefficient across rankings was irrelevant.

What *does* matter is the magnitude of the coefficient. Coefficients close to one indicate rankings that are highly consistent with one another. As **Exhibit 49** illustrates, the scores were significantly correlated across all of the various models, indicating that the different propensity score models yielded reasonably consistent rankings.

Potential matches with propensity scores more than two standard deviations away from the district's own score were discarded. If 40 neighbors were not within a two-standard-deviation radius, then the district has fewer than 40 fiscal peers.

Some districts, however, had only a handful of matches. For example, Valley View ISD, the K-12 district with the state's highest percent of students identified as Limited English Proficient, has only six neighbors within a two-standard-deviation radius, and therefore has only six propensity score matches. **Exhibit 50** shows the number of districts corresponding to each number of fiscal peers matches within "all other K-12" strata.

EXHIBIT 48

DESCRIPTIVE STATISTICS FROM K-12 PROPENSITY SCORE MODELS

	OBSERVATIONS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
METROPOLITAN MODELS					
PROPENSITY SCORE MODEL 1	1009	0.10	0.17	0.00	0.84
PROPENSITY SCORE MODEL 2	1009	0.10	0.12	0.00	0.49
PROPENSITY SCORE MODEL 3	1009	0.10	0.11	0.00	0.56
PROPENSITY SCORE MODEL 4	1009	0.10	0.13	0.00	0.88
PROPENSITY SCORE MODEL 5	1009	0.10	0.15	0.00	0.95
NONMETROPOLITAN MODELS					
PROPENSITY SCORE MODEL 1	1009	0.10	0.16	0.00	0.79
PROPENSITY SCORE MODEL 2	1009	0.10	0.10	0.00	0.55
PROPENSITY SCORE MODEL 3	1009	0.10	0.11	0.00	0.46
PROPENSITY SCORE MODEL 4	1009	0.10	0.12	0.00	0.60
PROPENSITY SCORE MODEL 5	1009	0.10	0.20	0.00	0.96

Source: Texas Comptroller of Public Accounts.

EXHIBIT 49

SPEARMAN CORRELATIONS OF K-12 PROPENSITY SCORES

	METROPOLITAN					NONMETROPOLITAN				
	QUINTILE1	QUINTILE2	QUINTILE3	QUINTILE4	QUINTILE5	QUINTILE1	QUINTILE2	QUINTILE3	QUINTILE4	QUINTILE5
METROPOLITAN										
QUINTILE1	1.00									
QUINTILE2	0.88	1.00								
QUINTILE3	0.70	0.82	1.00							
QUINTILE4	0.55	0.69	0.75	1.00						
QUINTILE5	0.08	0.00	0.17	0.47	1.00					
NONMETROPOLITAN										
QUINTILE1	-0.31	-0.30	-0.42	-0.43	-0.18	1.00				
QUINTILE2	-0.39	-0.40	-0.50	-0.49	-0.15	0.92	1.00			
QUINTILE3	-0.67	-0.73	-0.72	-0.67	-0.12	0.70	0.81	1.00		
QUINTILE4	-0.80	-0.84	-0.81	-0.67	-0.05	0.58	0.66	0.93	1.00	
QUINTILE5	-0.78	-0.90	-0.85	-0.67	0.10	0.40	0.52	0.81	0.90	1.00

Note: All of the correlations are statistically significant at the 5 percent level.
Source: Texas Comptroller of Public Accounts.

EXHIBIT 50

NUMBER OF PROPENSITY MATCHES FOR K-12 DISTRICTS

NUMBER OF MATCHES	NUMBER OF TRADITIONALSCHOOL DISTRICTS	NUMBER OF CHARTER SCHOOL DISTRICTS
6	1	0
9	2	0
11	1	0
14	1	0
16	1	0
23	1	0
26	1	0
32	1	0
35	2	0
36	0	1
40	930	39

Source: Texas Comptroller of Public Accounts.

The final remaining stratum contains the 150 school districts with no high school.[82] Because the stratum is not small, the research team used propensity score matching to find fiscal peers for each of these districts. The stratum is not large enough, however, to be divided into quintiles, as was done with the K-12 stratum. Furthermore, a third of these districts (56) do not serve middle-school students. Therefore, the districts were divided into three groups — low-spending K-8 districts, high-spending K-8 districts and K-6 districts — based on their enrollment patterns and core operating expenditures per pupil.

As with the stratum of 981 K-12 districts, each of the three subgroups were assigned as a treatment group, and the corresponding probability model was estimated using the eight cost factors and their squares as control variables. **Exhibit 51** presents marginal effects from the three models.

Again, the 40 school districts with the nearest propensity scores to those of each designated treatment district were identified, and potential matches outside of a two-standard-deviation band were discarded. All 150 districts had at least 39 viable propensity score matches.

ASSESSING MATCH QUALITY

The peer groups identified by the propensity score analysis appear generally plausible. Districts in high-wage areas generally were matched with other districts in high-wage areas, and the same held true for high-poverty districts.

For a more formal appraisal of peer group quality, however, a frame of reference is needed. In other words, alternative groups for comparison must be generated.

EXHIBIT 51

DESCRIPTIVE STATISTICS FROM K-8 PROPENSITY SCORE MODELS

	OBSERVATIONS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
PROPENSITY SCORE MODEL 1	150	0.31	0.24	0.00	0.92
PROPENSITY SCORE MODEL 2	150	0.31	0.27	0.00	1.00
PROPENSITY SCORE MODEL 3	150	0.38	0.24	0.00	0.96

Source: Texas Comptroller of Public Accounts.

Two alternative grouping strategies were developed. First, an alternative set of fiscal peers was constructed by randomly assigning a propensity score to each school district, and then groups based on those random scores were generated. These randomly assigned groups provided a baseline for comparison, but are no better than drawing the names of fiscal peers out of a hat.

The second alternative was a *cost-function analysis* used to assign a cost projection to each school district. Cost function analysis is a strategy used to find the relationship between specific outputs and inputs, and is widely used in educational contexts. When properly specified and estimated using *stochastic frontier analysis* (SFA), the educational cost function is a theoretically and statistically reliable method for estimating cost variations between districts, given designated performance goals.[83]

SFA was used to estimate a translog cost function with two outputs (Annual Reading Progress Scores and Annual Math Progress Scores), two input prices, and the same array of student demographics and other cost factors included in the propensity score matching analysis.[84] The cost function estimates were used to predict the cost of producing the state average level of annual progress in each school district. The 40 school districts with the closest cost predictions for each school district, then, were its alternative fiscal peers.

Exhibit 52 illustrates the Spearman correlations among the scoring variables (propensity scores, cost function predictions and random rankings) used to generate the three sets of peer groups. In all three cases, nearest neighbors with respect to the scoring variable were chosen. As the exhibit illustrates, the propensity scores are well correlated with the cost predictions, and badly correlated with the randomized scores.

The only cases in which cost function predictions were not significantly correlated with the propensity scores were the first nonmetropolitan quintile and the K-6 schools model. In the first case, the lack of correlation was driven by a large number of school districts with propensity scores near zero. Those districts are "outside the region of common support," meaning that they were not in the least-cost nonmetropolitan quintile and had a very low estimated probability of belonging there. If attention is restricted only to the region of common support, the correlation between the propensity score and the cost function projection rises to -0.4918.

The lack of correlation between the propensity scores and cost projections for the K-6 model (which persists even if attention is restricted to the region of common support) could cast doubt on the propensity score matches, but could also indicate that the instructional technology used in districts with elementary schools only is so different that the cost function model (which

EXHIBIT 52

SPEARMAN CORRELATIONS ACROSS SCORING VARIABLES

	COSTFUNCTION SCORES	RANDOM SCORES
K-12 METROPOLITAN MODELS		
PROPENSITY SCORE MODEL 1	-0.81	-0.04
PROPENSITY SCORE MODEL 2	-0.82	-0.04
PROPENSITY SCORE MODEL 3	-0.66	-0.01
PROPENSITY SCORE MODEL 4	-0.45	0.01
PROPENSITY SCORE MODEL 5	0.16	0.04
K-12 NONMETROPOLITAN MODELS		
PROPENSITY SCORE MODEL 1	0.02	0.00
PROPENSITY SCORE MODEL 2	0.11	-0.01
PROPENSITY SCORE MODEL 3	0.49	0.00
PROPENSITY SCORE MODEL 4	0.68	0.02
PROPENSITY SCORE MODEL 5	0.80	0.03
K-8 MODELS		
PROPENSITY SCORE MODEL 1	-0.54	-0.14
PROPENSITY SCORE MODEL 2	0.39	0.12
PROPENSITY SCORE MODEL 3	-0.02	-0.02

Source: Texas Comptroller of Public Accounts.

was estimated using data on K-12 districts) cannot fully reflect important cost differences for this subset of schools, thereby casting doubt on the cost function matches.

Another strategy for comparing peer groups generated by the three matching strategies is to simply count the number of matches they have in common. In doing so, the assumption is that the alternative strategies would be applied only to districts that were matched using propensity scoring, and that matches for districts in the other strata would remain unchanged.

Despite significant correlations among the underlying score variables, the cost function and propensity score modeling strategies yield very different sets of fiscal peers (**Exhibit 53**). Fewer than 10 percent of the districts identified as fiscal peers by the propensity score matching technique were also identified as peers based on cost function matching. One explanation could be that most Texas school districts are highly similar to more than 40 other districts and that the alternative strategies are finding different but equally plausible matches.

EXHIBIT 53

NUMBER OF MATCHES IN COMMON

	COSTFUNCTION MATCHES	RANDOM MATCHES
K-12 METROPOLITAN DISTRICTS		
NUMBER OF PEERS IN COMMON	1,320	615
TOTAL NUMBER OF PEERS	19,266	19,266
K-12 NONMETROPOLITAN DISTRICTS		
NUMBER OF PEERS IN COMMON	1,613	616
TOTAL NUMBER OF PEERS	19,746	19,746
K-8 DISTRICTS		
NUMBER OF PEERS IN COMMON	293	195
TOTAL NUMBER OF PEERS	5,998	5,998

Source: Texas Comptroller of Public Accounts.

Because the three strategies yielded different sets of fiscal peers, another metric for deciding among these sets was necessary. The goal of the matching strategies is to identify up to 40 peer districts that are highly similar to each individual district. Match quality evaluation is based on the extent to which the designated peers differ from the district itself with respect to each of the eight cost factors.

The mean squared error (MSE) for each cost factor measures the sum of squared differences between the district value for a cost factor and the peer values for that cost factor.[85] It represents the average deviation from baseline for the districts in the peer group. **Exhibits 54** and **55** illustrate the distribution of mean squared errors for each of the eight cost factors across each of the three alternative grouping strategies.

Exhibit 54 presents mean squared errors for K-12 school districts. As expected, the average MSE for propensity score matching was lower than for random assignment in all cases. Somewhat surprisingly, the average MSE also was lower for propensity score matching than for cost function matching in all but one case, and in that one case, percent low income, the MSEs were not statistically different at the 1 percent level. The evidence, then, suggests that propensity score matching yields more homogeneous groupings than cost function matching.

Exhibit 55 presents mean squared errors for K-8 school districts. Here, the evidence was more mixed. For the size-related cost factors (enrollment and square miles) and the special education cost factors, the propensity score-based groups were more internally similar, but for the share of low-income students and the share of LEP students the cost function-based groups were more internally similar. There were no differences in means for the MSEs of the other cost factors. As such, the evidence suggests that propensity score matching yielded fiscal peer groups that were no more or less internally consistent than those arising from cost function analysis.

DISTRICT SPENDING INDEX

To fairly assess each district's financial disposition, each fiscal peer group was sorted into quintiles by a CWI-based spending measure. The spending measure consisted of core operating expenditures per pupil, adjusted for geographic wage variations using the CWI measure.[86]

Each district then received a rating according to its quintile within the peer group. Ratings range from "very low" to "very high," representing the lowest and highest spending quintiles of each district's peer group. A rating of "average" indicates that at least 40 percent of the peers spent more than the district, and at least 40 percent of the peers spent less. **Exhibit 56** compares spending measures broken down by spending index rating.

CAMPUS-LEVEL MATCHES

The Texas public school system includes nearly 8,000 campuses that differ widely with respect to size and student demographics. The FAST analysis focused on campuses with an average of at least 25 students in fall enrollment from 2007 through 2009.

EXHIBIT 54

MEAN SQUARED ERRORS FOR ALTERNATIVE GROUPING STRATEGIES, K-12 STRATA

	OBSERVATIONS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
ENROLLMENT					
PROPENSITY SCORE	981	27.01	25.69	2.75	215.54
COST FUNCTION	981	33.42*	32.77	2.31	328.07
RANDOM ASSIGNMENT	981	63.54*	43.97	17.37	308.17
LEP					
PROPENSITY SCORE	981	16.65	26.08	1.41	240.92
COST FUNCTION	981	22.51*	29.83	1.16	256.82
RANDOM ASSIGNMENT	981	22.68*	28.60	2.51	227.32
LOW INCOME					
PROPENSITY SCORE	981	10.15	8.95	1.25	56.86
COST FUNCTION	981	10.62	7.59	2.23	74.59
RANDOM ASSIGNMENT	981	14.10*	9.26	4.77	66.21
HIGH NEEDS SPECIAL ED.					
PROPENSITY SCORE	981	1.03	1.96	0.09	42.19
COST FUNCTION	981	1.23*	2.15	0.17	45.48
RANDOM ASSIGNMENT	981	6.10*	10.38	0.31	51.88
OTHER SPECIAL ED.					
PROPENSITY SCORE	981	1.26	1.49	0.17	25.00
COST FUNCTION	981	1.62*	1.66	0.28	27.13
RANDOM ASSIGNMENT	981	1.93*	1.85	0.47	29.89
SQUARE MILES					
PROPENSITY SCORE	981	38.42	34.79	4.76	294.03
COST FUNCTION	981	65.73*	41.35	17.23	351.56
RANDOM ASSIGNMENT	981	73.40*	45.03	14.82	360.45
HS-CWI					
PROPENSITY SCORE	981	1.12	1.27	0.03	11.20
COST FUNCTION	981	2.95*	1.76	0.11	11.50
RANDOM ASSIGNMENT	981	3.89*	1.81	1.22	10.40
CWI					
PROPENSITY SCORE	981	1.42	1.54	0.06	16.05
COST FUNCTION	981	4.06*	2.37	0.22	15.31
RANDOM ASSIGNMENT	981	5.40*	2.50	1.70	13.21

* indicates that the difference in means from propensity score matching is statistically significant at the 1 percent level.
Source: Texas Comptroller of Public Accounts.

EXHIBIT 55

MEAN SQUARED ERRORS FOR ALTERNATIVE GROUPING STRATEGIES, K-8 STRATA

	OBSERVATIONS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
ENROLLMENT					
PROPENSITY SCORE	150	17.71	17.33	4.93	155.12
COST FUNCTION	150	35.24*	28.93	2.54	170.13
RANDOM ASSIGNMENT	150	78.68*	52.32	21.34	296.85
LEP					
PROPENSITY SCORE	150	52.36	48.69	9.25	240.52
COST FUNCTION	150	40.65	57.27	2.69	225.63
RANDOM ASSIGNMENT	150	42.90	59.12	2.37	233.14
LOW INCOME					
PROPENSITY SCORE	150	26.06	16.51	9.43	97.37
COST FUNCTION	150	20.40*	15.53	4.05	89.11
RANDOM ASSIGNMENT	150	22.46*	13.91	4.38	67.11

EXHIBIT 55 CONTINUED

	OBSERVATIONS	MEAN	STANDARDDEVIATION	MINIMUM	MAXIMUM
HIGH NEEDS					
PROPENSITY SCORE	150	1.92	2.71	0.29	27.08
COST FUNCTION	150	3.14*	5.33	0.24	39.37
RANDOM ASSIGNMENT	150	7.26*	11.35	0.41	52.12
OTHER SPECIAL					
PROPENSITY SCORE	150	2.99	2.37	0.73	15.52
COST FUNCTION	150	3.78*	3.13	0.34	15.39
RANDOM ASSIGNMENT	150	3.47	2.39	0.50	10.39
SQUARE MILES					
PROPENSITY SCORE	150	47.75	61.51	4.82	574.33
COST FUNCTION	150	120.81*	52.26	29.14	315.78
RANDOM ASSIGNMENT	150	120.61*	52.89	17.39	255.98
HS-CWI					
PROPENSITY SCORE	150	3.59	1.98	1.14	10.08
COST FUNCTION	150	3.82	2.85	0.20	12.02
RANDOM ASSIGNMENT	150	4.24*	1.97	1.44	9.13
CWI					
PROPENSITY SCORE	150	4.96	3.15	1.35	17.95
COST FUNCTION	150	5.30	3.91	0.56	16.27
RANDOM ASSIGNMENT	150	5.84*	2.78	2.03	12.23

* indicates that the difference in means from propensity score matching is statistically significant at the 1-percent level.
Source: Texas Comptroller of Public Accounts.

EXHIBIT 56

DISTRICT EXPENDITURES BY SPENDING INDEX

SPENDING INDEX	DISTRICTS	CORE SPENDING*	ADJUSTED CORE SPENDING**
VERY LOW	181	$7,037	$7,280
LOW	262	7,970	8,608
AVERAGE	328	8,532	9,669
HIGH	287	9,247	10,708
VERY HIGH	152	11,968	14,144
N/A***	25	—	—

* Core operating expenditures per pupil.
** Cost-adjusted core operating expenditures per pupil.
*** Insufficient data to receive a Spending Index.
Source: Texas Comptroller of Public Accounts.

It seemed most appropriate to match schools that serve similar grade levels. Therefore, the campuses were stratified according to the grade levels served (early elementary, elementary, middle, secondary and multi-level).[87] The secondary campuses also were divided into very large high schools and other high schools. (The very large high schools have at least 2,000 students in fall enrollment, and are roughly analogous to the division 5A high school classification used for interscholastic athletics. No other type of campus is this large.) Finally, the model separated out AEA residential and nonresidential campuses. Propensity score matching then was applied within each stratum. **Exhibit 57** displays the number of campuses in each stratum.

Despite the large number of campuses, a few were highly unusual and could not be matched using propensity scoring. These include two early elementary campuses and one elementary campus with a student body of at least 70 percent special education students. No other school at similar grade levels serves more than 50 percent. These three campuses were designated as a separate stratum and served as peers for one another. Similarly, the non-elementary campuses with at least 70 percent special education students were designated as a separate stratum.

As with the district-level analysis, campuses were sorted into expenditure subgroups within each stratum. In this case, however, the sorting was based on operating expenditures per pupil for campus-related activities instead of the broader definition employed in the district-level analysis.[88] Operating expenditures for campus-related activities (instruction, instructional services, instructional leadership, school leadership and student support services) are more consistently defined across campuses due to the way districts allocate administrative costs. Some districts allocate most of their central administration activities to specific campuses, while others do not. Virtually all districts allocate their campus-related expenditures.

EXHIBIT 57

TEXAS PUBLIC SCHOOL CAMPUSES BY STRATUM

TYPE OF CAMPUS	NUMBER OF CAMPUSES
EARLY ELEMENTARY SCHOOLS	332
ELEMENTARY SCHOOLS	4,059
MIDDLE SCHOOLS	1,578
VERY LARGE SECONDARY SCHOOLS*	228
OTHER SECONDARY SCHOOLS	990
MULTI-LEVEL SCHOOLS	293
AEA RESIDENTIAL SCHOOLS	
SECONDARY SCHOOLS	29
OTHER SCHOOLS	33
AEA NON-RESIDENTIAL SCHOOLS	
ELEMENTARY AND EARLY ELEMENTARY SCHOOLS	14
MIDDLE SCHOOLS	15
SECONDARY SCHOOLS	198
MULTI-LEVEL SCHOOLS	44
SPECIAL EDUCATION ELEMENTARY SCHOOLS	3
SPECIAL EDUCATION NON-ELEMENTARY SCHOOLS	29
TOTAL	7,845

* "Very large" secondary schools have more than 2,000 students.
Source: Texas Comptroller of Public Accounts.

EXHIBIT 58

CAMPUS COST FACTORS

	MEAN	MINIMUM	MAXIMUM
INPUT PRICES			
COMPARABLE WAGE INDEX	1.33	0.94	1.58
HIGH SCHOOL COMPARABLE WAGE INDEX	1.26	0.95	1.47
SCHOOL DISTRICT SIZE			
ENROLLMENT	596	1	4,572
STUDENT NEED			
PERCENT LIMITED ENGLISH PROFICIENCY	15.9	0.00	100.0
PERCENT ECONOMICALLY DISADVANTAGED	58.5	0.00	100.0
PERCENT SPECIAL EDUCATION	10.7	0.00	100.0

* Comparable Wage Index for professional workers and High School Comparable Wage Index for support staff.
Sources: Texas Education Agency, National Center for Education Statistics, Bureau of Labor Statistics and Texas Comptroller of Public Accounts.

The elementary, middle and secondary campuses then were divided into two groups — metropolitan and nonmetropolitan schools — and then subdivided into subgroups based on their instructional operating expenditures per pupil. There were too few nonmetropolitan schools in the multi-level schools, early elementary schools, large secondary schools and AEA strata, so these strata are not divided into regional groups before subdividing by instructional expenditures per pupil.

Once divided into strata and subgroups, propensity score matching was used to identify the fiscal peers for each stratum with more than 40 campuses. The matching analysis used campus-level versions of most of the cost factors included in the district-level analysis. Geographic size is not relevant at the school level and was not included. High-needs special education students and other special education students cannot be differentiated at the campus level, and so those two groups were combined. The other six cost factors from the district-level model, as well as their squares and selected interaction terms as control variables, remained. Interaction terms were selected on a case-by-case basis to ensure that all propensity score distributions satisfied the necessary balancing conditions.

Again, the 40 campuses with the closest propensity scores (i.e. the 40 nearest-neighbor matches) within two standard deviations of the campus's own propensity score were designated as its fiscal peers. If 40 neighbors were not within a two-standard-deviation radius, the campus has fewer than 40 fiscal peers. The vast majority of campuses, however, have 40 viable, nearest-neighbor matches. **Exhibit 58** displays the descriptive statistics on the six variables used in the campus-level matching analysis.

Exhibit 59 presents MSEs for the fiscal peer groups generated by propensity score matching. Each MSE represents the average percentage deviation from baseline for the campuses in the peer group with respect to a specific cost factor. As the exhibit illustrates, MSEs generally were low across all six cost factors, indicating that the peer groups were highly similar in all six dimensions.

Some outlier campuses, however, did not have very good matches. Generally, the campuses with less-precise matches were those at either end of the cost factor distribution where the number of potential close matches was limited; the most precise matches were in the middle of the distribution, where there were many potential peers. Tightening the

EXHIBIT 59

MEAN SQUARED ERRORS FOR PROPENSITY SCORE MATCHES BY CAMPUS TYPE

	OBSERVATIONS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
EARLY ELEMENTARY SCHOOLS					
ENROLLMENT	332	9.70	12.86	0.43	87.35
LEP	332	54.95	51.51	4.91	335.27
LOW INCOME	332	10.81	12.36	1.55	98.22
SPECIAL ED.	332	2.81	4.47	0.36	46.41
HS-CWI	332	3.76	1.74	1.04	10.18
CWI	332	5.06	2.55	0.88	14.54
ELEMENTARY SCHOOLS					
ENROLLMENT	4,058	4.50	6.80	0.00	129.05
LEP	4,058	48.07	42.76	0.29	368.04
LOW INCOME	4,058	20.93	16.07	0.24	114.22
SPECIAL ED.	4,058	1.40	1.36	0.12	20.88
HS-CWI	4,058	1.64	1.27	0.01	8.73
CWI	4,058	1.80	1.37	0.02	11.97
MIDDLE SCHOOLS					
ENROLLMENT	1,577	11.42	12.66	0.51	140.17
LEP	1,577	8.26	13.68	0.15	203.12
LOW INCOME	1,577	11.69	10.85	0.26	89.11
SPECIAL ED.	1,577	2.39	2.71	0.11	40.51
HS-CWI	1,577	1.48	1.26	0.03	8.60
CWI	1,577	1.70	1.41	0.06	11.48
VERY LARGE SECONDARY SCHOOLS					
ENROLLMENT	228	0.79	0.87	0.14	8.42
LEP	228	2.96	4.41	0.19	44.37
LOW INCOME	228	11.77	10.11	1.78	78.31
SPECIAL ED.	228	1.22	0.97	0.31	7.84
HS-CWI	228	1.53	1.21	0.21	8.22
CWI	228	1.74	1.30	0.20	8.94
SECONDARY SCHOOLS					
ENROLLMENT	1,217	14.34	17.47	0.88	212.53
LEP	1,217	8.90	32.01	0.12	515.60
LOW INCOME	1,217	13.70	12.01	0.76	83.57
SPECIAL ED.	1,217	6.87	15.08	0.29	260.41
HS-CWI	1,217	1.55	1.43	0.03	10.92
CWI	1,217	1.87	1.81	0.07	18.93
MULTI-LEVEL SCHOOLS					
ENROLLMENT	369	12.98	13.34	0.77	82.71
LEP	369	16.78	33.64	0.66	320.77
LOW INCOME	369	17.48	16.12	2.33	108.70
SPECIAL ED.	369	15.49	29.97	0.61	175.00
HS-CWI	369	2.58	1.94	0.28	12.52
CWI	369	3.39	2.52	0.63	17.09

Source: Texas Comptroller of Public Accounts.

bands around the propensity scores would reduce the MSEs for campuses in the tails of the distribution, but also would reduce the number of fiscal peers.

As with the district-level peer groups, the majority of campuses had 40 fiscal peers (**Exhibit 60**). Match quality was assessed using the same techniques employed in the district analysis, arriving at the same conclusions.

EXHIBIT 60

PROPENSITY SCORE MATCHES FOR TEXAS PUBLIC SCHOOL CAMPUSES

NUMBER OF MATCHES	EARLY ELEMENTARY	ELEMENTARY	MIDDLE	VERY LARGE SECONDARY	OTHER SECONDARY	MULTI-LEVEL
0	0	1	1	0	0	0
1	0	1	0	0	0	0
2	0	3	0	0	0	0
3	0	3	0	0	0	0
4	0	2	0	0	0	0
7	0	0	0	0	1	0
8	1	0	1	0	0	0
9	0	1	0	0	1	0
10	0	1	0	0	1	0
11	0	2	1	0	0	1
12	0	2	0	0	0	0
13	0	1	0	0	2	0
16	0	0	3	0	0	0
17	0	1	0	0	1	0
18	0	3	1	0	0	0
19	0	1	0	0	0	0
20	0	1	1	0	0	0
21	0	1	0	0	0	0
22	1	0	0	0	1	2
23	2	1	1	1	0	1
24	1	0	0	0	0	2
25	2	5	0	1	1	0
26	0	0	1	1	2	1
27	0	0	0	0	0	1
28	0	3	0	2	0	2
29	0	2	0	0	0	1
30	0	1	0	0	1	1
31	0	2	0	2	0	0
32	0	3	1	0	0	2
33	1	1	0	0	1	0
34	0	1	0	1	0	6
35	0	1	0	2	3	2
36	1	0	0	0	1	0
37	0	1	2	0	3	5
38	1	1	1	2	3	6
39	1	3	1	1	0	5
40	321	4,010	1,563	215	1,166	299

Source: Texas Comptroller of Public Accounts.

CAMPUS SPENDING INDEX

As with the district analysis, each campus fiscal peer group was sorted into quintiles by a CWI-based spending measure. The spending measure consisted of campus-related activities per pupil, adjusted for geographic wage variations using the CWI measure.[89] Each campus then received a rating according to its quintile within the peer group. Ratings range from "very low" to "very high," representing the lowest and highest spending quintiles of each campus's peer group. A rating of "average" indicates that at least 40 percent of the peers spent more than the campus, and at least 40 percent of the peers spent less.

Exhibit 61 shows spending measures broken down by spending index rating.

Exhibits 62 and 63 show results from the propensity score models. The top number in each row is the estimated coefficient, and the bottom number in parenthesis is the estimated t-statistic value.

EXHIBIT 61

CAMPUS EXPENDITURES BY SPENDING INDEX RATING

SPENDING INDEX	CAMPUSES	CORE SPENDING*	ADJUSTEDCORE SPENDING**
VERY LOW	1,186	$4,848	$4,756
LOW	1,630	5,488	5,557
AVERAGE	1,772	5,917	6,160
HIGH	1,591	6,300	6,817
VERY HIGH	1,048	7,202	8,033
N/A***	1,095	—	—

* Campus-related activities per pupil.
** Cost-adjusted campus-related activities per pupil.
*** Insufficient data to receive a Spending Index.
Source: Texas Comptroller of Public Accounts.

EXHIBIT 62

MARGINAL EFFECTS FROM PROBIT, K-12 DISTRICTS

	METROPOLITAN					NONMETROPOLITAN				
	QUINTILE 1	QUINTILE 2	QUINTILE 3	QUINTILE 4	QUINTILE 5	QUINTILE 1	QUINTILE 2	QUINTILE 3	QUINTILE 4	QUINTILE 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ENROLLMENT (LOG)	0.006	0.108	-0.014	0.057	0.110	0.001	0.138	0.016	0.000	0.000
	(1.91)	(2.91)**	(0.34)	(1.61)	(1.99)*	(4.25)**	(3.62)**	(3.84)**	(3.15)**	(3.61)**
HIGH NEEDS SP. ED.	0.035	1.478	1.274	2.296	1.035	-0.001	1.011	-0.004	0.000	0.000
	(0.24)	(0.79)	(1.23)	(1.57)	(1.48)	(0.27)	(0.90)	(0.08)	(0.90)	(0.95)
LEP	-0.001	-0.156	0.108	-0.100	-0.356	0.000	-0.006	-0.002	-0.000	0.000
	(0.09)	(1.06)	(0.60)	(0.83)	(2.32)*	(1.15)	(0.05)	(0.20)	(0.39)	(1.70)
LOW INCOME	-0.031	-0.161	-0.259	0.499	-0.607	0.001	0.296	0.010	0.000	-0.000
	(1.00)	(0.57)	(0.75)	(1.75)	(2.20)*	(0.55)	(0.67)	(0.21)	(0.12)	(1.72)
OTHER SP. ED	-0.329	-0.247	-7.039	3.058	2.742	0.005	0.596	0.012	0.000	0.000
	(2.43)*	(0.13)	(3.56)**	(1.74)	(1.39)	(1.24)	(0.60)	(0.19)	(0.75)	(0.02)
SQUARE MILES (LOG)	-0.004	-0.015	0.089	-0.014	0.010	0.000	0.088	-0.001	-0.000	0.000
	(1.85)	(0.67)	(2.55)*	(0.73)	(0.42)	(2.73)**	(2.32)*	(0.41)	(0.94)	(1.75)
HS-CWI	0.352	0.875	-2.561	2.823	4.702	0.017	-1.759	0.001	0.001	-0.000
	(1.69)	(0.51)	(1.21)	(1.51)	(2.72)**	(1.78)	(0.93)	(0.00)	(1.84)	(0.50)
CWI	-0.076	0.643	2.624	0.923	-0.762	0.012	3.082	0.178	0.000	0.000
	(0.55)	(0.53)	(1.67)	(0.74)	(0.61)	(2.15)*	(2.03)*	(1.12)	(0.03)	(0.63)
ENROLLMENT (LOG), SQUARED	-0.000	-0.006	-0.002	-0.004	-0.009	-0.000	-0.009	-0.001	-0.000	-0.000
	(2.71)**	(3.27)**	(0.96)	(2.31)*	(2.65)**	(3.60)**	(3.37)**	(3.87)**	(3.39)**	(4.00)**
HIGH NEEDS SP. ED., SQUARED	-0.898	-28.213	-5.390	-29.761	-1.732	-0.030	-14.580	-0.125	-0.001	-0.000
	(0.47)	(1.13)	(0.59)	(1.62)	(0.30)	(0.56)	(1.01)	(0.21)	(0.93)	(0.88)
LEP, SQUARED	-0.010	0.228	-0.187	0.464	0.622	-0.002	0.377	0.015	0.000	-0.000
	(0.16)	(0.67)	(0.46)	(1.78)	(1.77)	(1.17)	(1.31)	(0.63)	(0.51)	(1.86)

EXHIBIT 62 CONTINUED

	METROPOLITAN					NONMETROPOLITAN				
	QUINTILE 1	QUINTILE 2	QUINTILE 3	QUINTILE 4	QUINTILE 5	QUINTILE 1	QUINTILE 2	QUINTILE 3	QUINTILE 4	QUINTILE 5
LOW INCOME, SQUARED	-0.029	-0.229	0.044	-0.119	0.268	-0.000	-0.111	-0.019	-0.000	0.000
	(2.95)**	(2.32)*	(0.37)	(1.47)	(2.59)**	(0.79)	(0.83)	(1.55)	(1.03)	(1.11)
OTHER SP. ED, SQUARED	-0.287	-1.843	11.501	-8.317	-9.356	-0.026	-3.458	-0.096	-0.000	0.000
	(0.44)	(0.25)	(1.70)	(1.60)	(1.68)	(1.21)	(0.61)	(0.28)	(0.71)	(0.84)
SQUARE MILES (LOG), SQUARED	0.000	0.001	-0.011	0.000	0.001	-0.000	-0.009	0.000	0.000	-0.000
	(1.45)	(0.39)	(2.82)**	(0.18)	(0.27)	(3.06)**	(2.44)*	(0.12)	(1.10)	(1.11)
HS-CWI, SQUARED	-0.166	-0.338	1.400	-0.788	-1.565	-0.008	0.702	-0.042	-0.000	0.000
	(2.04)*	(0.49)	(1.66)	(1.08)	(2.16)*	(1.83)	(0.85)	(0.33)	(1.99)*	(0.52)
CWI, SQUARED	0.049	-0.249	-1.290	-0.507	-0.018	-0.005	-1.297	-0.059	0.000	-0.000
	(0.98)	(0.55)	(2.21)*	(1.11)	(0.04)	(2.16)*	(1.98)*	(0.82)	(0.07)	(0.93)
LOW INCOME * CWI	-0.048	0.164	1.473	0.785	2.204	-0.001	-0.525	-0.092	-0.000	0.000
	(0.64)	(0.26)	(1.78)	(1.44)	(3.13)**	(0.84)	(0.98)	(1.95)	(0.77)	(1.59)
LOW INCOME* HS-CWI	0.090	0.021	-1.439	-1.283	-1.969	0.001	0.330	0.107	0.000	-0.000
	(1.04)	(0.03)	(1.61)	(2.11)*	(2.52)*	(0.23)	(0.46)	(1.50)	(0.65)	(0.17)
LOW INCOME*LOG ENROLLMENT	-0.001	0.018	0.010	0.030	-0.002					
	(0.46)	(1.09)	(0.58)	(2.26)*	(0.08)					
OTHER SPECIAL ED* LOG ENROLLMENT	0.043	0.046	0.711	-0.199	-0.216					
	(2.80)**	(0.24)	(3.49)**	(1.16)	(0.98)					

Absolute value of t-statistics in parentheses: * p<0.05 ** p<0.01
Source: Texas Comptroller of Public Accounts.

EXHIBIT 63

MARGINAL EFFECTS FROM PROBIT, K-8 DISTRICTS

	LOW-SPENDING K-8	HIGH-SPENDING K-8	K-6
ENROLLMENT (LOG)	-0.707 (1.92)	2.080 (2.44)*	-0.104 (0.24)
HIGH NEEDS SP. ED.	0.497 (0.06)	2.557 (0.35)	0.457 (0.06)
LEP	-1.525 (1.58)	1.470 (1.28)	0.632 (0.54)
LOW INCOME	-0.474 (0.31)	1.222 (0.78)	-1.227 (0.77)
OTHER SP. ED	9.712 (1.83)	-17.734 (3.21)**	5.116 (0.92)
SQUARE MILES (LOG)	0.344 (0.72)	0.582 (2.70)**	-0.549 (2.15)*
HS-CWI	-15.801 (1.22)	2.100 (0.16)	16.822 (0.96)
CWI	13.925 (1.67)	-3.051 (0.36)	-15.560 (1.50)
ENROLLMENT (LOG), SQUARED	0.081 (2.32)*	-0.189 (2.36)*	-0.013 (0.32)
HIGH NEEDS SP. ED., SQUARED	-81.966 (0.68)	64.088 (0.69)	-62.352 (0.62)
LEP, SQUARED	2.455 (1.20)	-3.104 (1.28)	-0.523 (0.22)
LOW INCOME, SQUARED	-0.950 (1.59)	-0.260 (0.36)	1.132 (1.66)
OTHER SP. ED, SQUARED	-53.071 (1.83)	64.807 (2.13)*	-1.107 (0.03)
SQUARE MILES (LOG), SQUARED	-0.069 (1.00)	-0.056 (2.19)*	0.065 (2.16)*
HS-CWI, SQUARED	6.838 (1.24)	-1.699 (0.30)	-6.463 (0.88)
CWI, SQUARED	-6.267 (1.81)	2.155 (0.60)	5.891 (1.37)
LOW INCOME * CWI	1.257 (1.26)	-1.249 (1.27)	0.284 (0.26)
LOW INCOME * OTHER SPECIAL ED.	-2.825 (0.51)	14.285 (2.51)*	-9.542 (1.62)

Absolute value of t-statistics in parentheses: * p<0.05 ** p<0.01
Source: Texas Comptroller of Public Accounts.

DATA LIMITATIONS

FAST researchers found the data quality of district-level financial data to be significantly better than campus-level data.

TEA requires school districts to submit data for their campuses as well as for the district as a whole. The agency, however, only audits the district-level data. Districts report campus-level data with much more flexibility, and do not adhere to the same reporting standards as they use for district-level data. For example, not all districts allocate central administration expenses to their campuses, rendering campus-level operating expenditures unreliable for comparison.

In the 2008-09 AEIS report, campus per-pupil operating expenditures ranged from *$1 to $4.1 million*, with median spending at $6,476. Such a wide range raises questions of data reliability. Many campuses showed missing data for various financial components, with 373 campuses showing no data for operating expenditures and 509 showing no data for operating expenditures per pupil. Among those reporting data, 35 campuses showed operating expenditures of less than $1,500 per pupil, and eight reported spending less than $100 per pupil. At the other extreme, 268 campuses showed operating expenditures exceeding $15,000 per pupil, while 10 reported spending more than $100,000 per pupil.[90]

To account for campus inconsistencies, the FAST analysis only compares campus spending on operating expenditures for "campus-related" activities, averaged over three years and adjusted for geographic wage differences. This category consists of expenditures on instruction, instructional services, instructional leadership, school leadership and student support services.

When using adjusted "campus-related" activities, the number of campuses with expenditures of less than $1,500 per pupil drops to 13, while the number with expenditures exceeding $15,000 per pupil drops to 141 (**Exhibit 64**). These 154 campuses were excluded from the FAST financial analysis in accordance with National Center for Education Statistics practices.

EXHIBIT 64

FINANCIAL OUTLIER CAMPUSES

	2008-09 AEIS REPORT	2007-2009 PEIMS AVERAGE
	Operating Expenditures, All Funds Per Pupil	FAST Campus-Related Activities, Per Pupil
ALL CAMPUSES	8,322	8,355
CAMPUSES WITHOUT DATA	509	973*
CAMPUSES SPENDING GREATER THAN $15,000	268	141
CAMPUSES SPENDING LESS THAN $1,500	35	13

* Missing data for any year from 2007-2009 will result in a missing value for the three-year average.
Source: Texas Education Agency and Texas Comptroller of Public Accounts.

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[67] H.B. 2560, 80th Reg. Sess. (2007); H.B. 1314, 81st Reg. Sess. (2009); and H.B. 1307, 81st Reg. Sess. (2009).

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[76] Boys Ranch Independent School District has been excluded from the analysis because it is so dissimilar from other Texas school districts. Boys Ranch is a special-purpose ISD that serves a residential facility for at-risk youth.

[77] Rajeev H. Dehejia and Sadek Wahba, "Propensity Score Matching Methods for Nonexperimental Causal Studies," *The Review of Economics and Statistics* (February 2002), pp. 151-161, http://www.personal.ceu.hu/staff/Gabor_Kezdi/Program-Evaluation/Dehejia-Wahba-2002-matching.pdf; Rajeev H. Dehejia, "Practical Propensity Score Matching: A Reply to Smith and Todd," *Journal of Econometrics* (No. 125, 2005), pp. 355-364, http://www-personal.umich.edu/~econjeff/Papers/dehejia_practical_pscore.pdf; and Marco Caliendo and Sabine Kopeinig, *Some Practical Guidance for the Implementation of Propensity Score Matching* (Bonn, Germany: IZA, May 2005), pp. 1-29, http://www.acoes.org.co/pdf/Documentos%20HFTF/30.pdf. (Last visited November 29, 2010.)

[78] Core operating expenditures are current operating expenditures, except for functions 34, 35, 92 and 95. Functions 34 (student transportation) and 35 (food service) are excluded because they represent additional functions of local school districts not directly related to student achievement. Functions 92 (the incremental costs associated with the chapter 41 purchase or sale of WADA) and 95 (payments to juvenile justice alternative education programs) are excluded because they do not represent operating expenditures of the district itself.

[79] Metropolitan school districts are those located in a county that is part of a metropolitan statistical area as defined by the U.S. Office of Management and Budget. For a list of metropolitan counties, visit http://www.census.gov/population/www/metroareas/metroarea.html.

[80] The interaction terms were selected to ensure that the resulting propensity scores satisfied the "balancing property," the requirement that within a stratification block, there should be no statistical difference in means between the treatment group and the controls with respect to the explanatory variables (in this context, the cost

factors). The selected interactions were the interaction between percent of low income and the HS-CWI; the interaction between the percent of low income and the CWI; and, for metropolitan districts, the interactions between district sizes and the percent of low-income and percent of other special education students.

81 All 10 models yield propensity score distributions satisfying the balancing property. In other words, there were no statistically significant differences in cost factor means between treatment and control districts within each stratification block.

82 Four of these districts are AEA districts. Because there are so few K-8 AEA school districts, they were not analyzed separately.

83 Drawn from a forthcoming paper by Timothy J. Gronberg, Dennis W. Jansen and Lori L. Taylor, Texas A&M University.

84 The translog specification is a flexible functional form that is a second-order approximation to any cost function. For the FAST project, the research team estimated

$$\ln(E) = a_0 + \sum_{i=1}^{2} a_i q_i + \sum_{i=1}^{2} b_i w_i + \sum_{i=1}^{6} c_i x_i + 0.5 \sum_{i=1}^{2} \sum_{j=i}^{2} d_{ij} q_i q_j + \sum_{i=1}^{2} \sum_{j=i}^{2} e_{ij} q_i w_j + 0.5 \sum_{i=1}^{2} \sum_{j=i}^{2} f_{ij} w_i w_j + \sum_{i=1}^{6} \sum_{j=i}^{2} g_{ij} x_i w_j + \sum_{i=1}^{2} \sum_{j=i}^{6} h_{ij} q_i x_j + 0.5 \sum_{i=1}^{6} \sum_{j=i}^{6} k_{ij} x_i x_j + a_4 x_1^3 + \nu + \mu$$

Where E is core current operating expenditures per pupil, there are two outputs (qi), two input price measures (wi) and six other cost factors (xi). The natural log of school district enrollment (x1) also enters cubically, to accommodate the unusually large range in this variable. The estimation includes data on K-12 school districts for the 2006, 2007, 2008 and 2009 school years, so year indicators have also been added to the regression. Only traditional school districts with at least "Acceptable" accountability ratings were included in the estimation subset.

85 The research team calculates the mean squared error for school district j as where xj is the value of the cost factor for school district j, xi is the value of the cost factor for peer district i, is the statewide mean value of the cost factor and n is the number of school districts in the peer group. Dividing the squared errors by the statewide mean makes the scaling consistent across the eight cost factors, allowing for comparisons among them.

86 Core operating expenditures consists of operating expenditures excluding transportation and food services, consisting of functions 11-53 (excluding 34 and 35), 81 for charters, 92, 95 and objects 6100-6400.

87 Early elementary campuses serve students through the second grade.

88 Campus-related activities are all operating expenditures in functions 11-33, and objects 6100-6400.

89 Campus-related activities are all operating expenditures in functions 11-33, and objects 6100-6400.

90 Texas Education Agency, "2008-09 Academic Excellence Indicator System Download of All Data," http://ritter.tea.state.tx.us/perfreport/aeis/2009/DownloadData.html <http://ritter.tea.state.tx.us/perfreport/aeis/2009/DownloadData.html> . (Last visited September 16, 2010.) Custom queries created and calculations by Texas Comptroller of Public Accounts.