


Policy Brief

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IMPLEMENTATION, COST, AND FUNDING OF BILINGUAL EDUCATION IN TEXAS: LESSONS FOR LOCAL AND STATE POLICYMAKERS

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EXECUTIVE SUMMARY

The population of emergent bilingual students – those who speak a language other than English at home – is growing at a rate 10 times faster than overall enrollment in U.S. schools. At the same time, students classified as English language learners (ELL) score approximately one standard deviation, or about one grade level, lower than their native English speaking peers on state standardized tests. Research informing policies and practices that impact emergent bilingual students may help improve learning experiences for this growing population. The El Paso, Texas region serves one of the most concentrated populations of ELL students in the country and thus provides a useful context to learn about instructional programs for emergent bilingual students.

This policy brief synthesizes research conducted at the University of Texas El Paso (UTEP) on implementation of bilingual education models in the El Paso region, describes a study of the cost of bilingual education models in El Paso schools, and reports the findings of a recent study showing that bilingual education programs are underfunded in both Texas and nationally. The brief concludes with policy recommendations at the state and local level.

KEY FINDINGS

- Successful implementation of bilingual education requires both central office leadership and school-level organizing.
- School leaders can make instructional practices more inclusive for English language learners (ELL) through implementation of dual language education models.
- The cost of dual language education ranges from \$896 to \$1,568 across schools, representing an increase in costs of between 10% to 16%.
- The cost of transitional bilingual education is roughly similar to the cost of dual language education.
- Districts in Texas with high proportions of ELL students receive about 1% less state and local funding than otherwise similar low-ELL districts.
- High-ELL districts have higher voter-approved local tax rates than otherwise similar low-ELL districts, but generate less local funding because of lower property values.

Implementation of bilingual education. A large-scale study at UTEP called project Leadership in English Acquisition, Academic Achievement, and Development (LEAD) explores implementation of dual language education in El Paso. A set of studies examine effective superintendent and central office practices, school leadership that promotes social justice, and the importance of family-school relationships. This work highlights a number of important lessons for district policymakers and school site leaders, which we summarize here.

First, superintendents can implement wide-scale reforms by understanding their local context, exercising available political capital, and framing their district’s past educational injustices in ways that mobilize key stakeholders. For example, one superintendent we studied gained community support for implementation of dual language education in part by framing the dual language model as one that values students’ cultural assets. He then built practitioner support for dual language by creating after-school teacher roundtables. These teacher committees made the reform feel “more authentic, like it wasn’t just this top-down thing.”

Second, principals can use dual language education to support inclusive learning environments. Analyses of an exemplary principal describe the founding of a dual language program as part of her school's gifted and talented (GT) program. The principal identified and brought students from around the district who were classified as ELL and eligible to enroll in the GT program. She enrolled both native English speakers and ELLs into the dual language program, creating a two-way dual language model that served both native English speakers and ELLs. The principal recalled, "I knew I had GT students there [who were ELLs], but they weren't labeled GT... I thought to myself, some of these students are so bright... This was an opportunity for them." Later, with approval from the district, she expanded the dual language program to students who were not eligible for GT classrooms, given their standardized exam scores. The study of this exemplary principal provides valuable lessons for local policymakers and practitioners. District leaders must recognize visionary school leaders and provide them with flexibility. Meanwhile, school leaders should consider ways to break down traditional boundaries separating high- and low-achieving students. Finally, principal preparation programs in Texas should consider assigning principal candidates to observe and be mentored by veteran principals.

Third, strong family-school relationships are essential for effective implementation of bilingual education generally, but particularly for dual language education models. Research based on project LEAD highlights the importance of valuing all stakeholders – including principals, teachers, parents, and students – for educational reform to have impact. One district administrator noted, "We have to build capacity and we have to make stakeholders know we care about them so they will go the extra mile... Principals must do this." Principals must be aware of how leadership decisions were made in the past, including whether teachers and parents were involved, and ask whether there are systems in place within the school and community to understand the needs of parents, teachers, and students. In sum, research for project LEAD provides important lessons for superintendents and district leaders, school building leadership, and family-school relationships that help inform the implementation of bilingual education models.

Cost of bilingual education. Another UTEP study compares the cost of implementing dual language program to other instructional programs for emergent bilingual students, such as English as a Second Language and transitional bilingual education programs. The study is based on an El Paso area school district that implemented a districtwide dual language education program. Cost estimates are derived from case studies of elementary, middle, and high schools that transitioned from using various instructional programs for ELLs to a schoolwide dual language education program. In each setting, schools began the model with just the earliest grade within the school (e.g., kindergarten in elementary schools or sixth grade in middle schools), and expanded the program by one grade each year until all grades offered dual language courses. The majority of costs associated with implementation of dual language result from staff time for (a) administrator planning; (b) communication with families; and (c) teacher certification and professional development. Other costs included text books in a second language and teacher substitutes.

The study found that the cost of dual language education ranged from \$896 to \$1,568 across schools, representing an increase in expenditures of between 10% to 16%. The study also shows that start-up costs represent a substantial proportion of the overall costs of implementing dual language education models. Finally, the annual per-student cost of transitional bilingual – in which students transition to English-only instruction – is similar to that of dual language education.

Funding of bilingual education. Higher costs associated with bilingual education suggests that districts need additional funding to ensure ELL students receive equal educational opportunity. However, the Texas school finance system does not provide this necessary funding. Another recent UTEP study finds that district funding for bilingual education programs is inadequate in Texas and across districts nationally. The study focuses on high- and low-ELL districts, defined as those at the 5th and 95th percentile of percent ELL (i.e., districts with 0% ELLs and with 22% ELLs). Texas provides slightly less state and local funding to high-ELL, compared to and otherwise similar low-ELL districts (about \$9,000 per student compared to \$9,100). Given the funding disparities between high- and low-poverty districts in Texas identified in prior UTEP research, these results suggest that high-poverty, high-ELL districts are placed at a significant disadvantage in terms of overall resource levels, compared to lower-poverty districts and those serving fewer ELL students. The funding disparities across districts in Texas imply that district likely face barriers with respect to successful implementation of bilingual education.

The study then explores why high-ELL districts receive less state and local funding. Analyses show that districts serving more ELL students levy higher taxes, but generate less local funding because of lower property values. State funding is not progressive enough to make up for inequities in local funding between high- and low-ELL districts.

This brief offers several policy recommendations for state legislators. The Texas school finance system is currently designed to provide an additional 10% funding above the base per-student amount for each student classified as ELL. After various exceptions and alternate funding sources, high- and low-ELL districts receive approximately the same level of funding. Texas legislators should therefore consider increasing the weights associated with both students classified as ELL and students who are determined to be “at risk.” Legislators may also consider concentration grants for districts serving the highest proportion of students in poverty.

Texas serves over 750,000 students classified as ELL, the second largest number of any state after California. Ensuring that these students have equal educational opportunity is paramount to both the Texas economy and to the values of social and educational justice.

Implementation, Cost, and Funding of Bilingual Education in Texas: Lessons for Local and State Policymakers

U.S. schools have seen a dramatic increase in enrollment of students who speak a language other than English in the home over the past three decades. Emergent bilinguals – students whose heritage language is not English – are now the fastest growing student group in the United States. Under federal policy, non-native English speakers who gain proficiency in English are reclassified from an English Language Learner (ELL) to English proficient. On average, students classified as ELL perform lower on standardized exams, scoring about one grade level below their non-ELL peers.ⁱ

One of the key mechanisms for promoting equal educational opportunity is providing students with adequate funding levels. Although scholars debate the appropriate level of funding for K-12 education, there is general consensus that effective state school finance systems provide compensatory funding for students with greater needs.ⁱⁱ For emergent bilingual students, additional funding may be used for teacher professional development, curricular materials, and bilingual aides to help educators draw on the assets emergent bilinguals bring to schools, such as linguistic capital and cultural diversity. In short, schools serving greater numbers of emergent bilingual students or students in poverty require additional funding to provide equitable learning opportunities.

The Great Recession had substantial impacts on state school finance systems and most states have not restored funding back to pre-recession levels. Moreover, studies show recessionary budget cuts disproportionately impacted districts and schools serving greater proportions of students of color and in poverty.ⁱⁱⁱ For example, faced with serious budget shortfalls following the Great Recession, Texas cut state education funding in a way that primarily affected high-poverty districts. In 2012, over 600 school districts sued the state for

violating the state constitutional mandate of providing an adequate education for all students. Ultimately, the Texas Supreme Court ruled the finance system constitutional in May of 2016; however, the court's opinion labeled the system antiquated and urged the Legislator to overhaul the state's school funding mechanism.

The purpose of this policy brief is to report the findings of research conducted at the University of Texas El Paso (UTEP) looking at the implementation, cost, and funding of bilingual education in Texas. The brief first provides background context on emergent bilingual populations in Texas and nationally. We then proceed in three parts: Part 1 synthesizes research on the implementation of bilingual education. Several studies conducted at UTEP explore implementation of dual language education in El Paso schools. Part 2 describes research on the cost of dual language and transitional bilingual education models. Finally, Part 3 reports findings from a new Center for Education Research and Policy Studies working paper. That study finds districts serving greater proportions of students classified as English language learners (ELL) actually receive less funding than otherwise similar low-ELL districts in both Texas and nationally. These findings raise serious questions about equal educational opportunity given studies on the cost bilingual education. The brief concludes with recommendations for local and state policymakers.

Background Context

Emergent bilinguals are highly concentrated in a particular of states and districts. For example, half of all school districts enroll less than 1% ELL students, whereas one in five students is classified as ELL in the highest ELL districts (i.e., the 638 districts that are in the 95th percentile in terms of the proportions of ELL students).^{iv} Table 1 shows the percent of students classified as ELL, for states that educate more ELL students than the national average. In 2012-

13, 23% of students in California were classified as ELL, while ELLs represent about 16% of students in New Mexico, Nevada, and Texas.

TABLE 1

Percent of students classified as English Language Learners by state, 2007-08 to 2012-13

State	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Districts (2012-13)
California	24.37	24.33	28.86	23.10	23.10	22.81	864
New Mexico	18.60	15.51	15.47	15.71	16.15	15.76	87
Nevada	10.87	17.62	16.01	19.40	19.63	15.74	17
Texas	9.74	15.17	15.00	14.98	14.92	15.11	1,018
Colorado	10.66	10.87	11.44	11.84	12.01	11.98	175
Alaska	12.83	9.17	11.12	11.32	11.13	11.32	50
D.C.	7.03	9.86	9.58	8.46	8.39	10.25	1
Illinois	7.49	9.71	8.59	8.36	8.18	9.42	830
Florida	8.74	8.62	8.77	8.71	8.81	9.03	67
Oregon	11.07	11.26	11.06	10.55	11.34	8.97	174
Washington	7.84	7.99	6.29	8.65	7.86	8.94	274
Hawaii	9.43	10.34	10.04	10.63	13.55	8.92	1
All other states	4.44	4.44	4.34	4.32	4.45	4.53	9,190
Total	8.30	8.96	9.37	8.73	8.83	8.88	12,748

Note. District of Columbia Public Schools (D.C.) excludes surrounding charter schools. All other states include those for which the percent of students classified as English language learners (ELL) is below the 2012-13 national average of 8.9%. In each state, because larger districts tend to have higher proportions of ELL, the average percent of ELLs across all districts in a state is lower than the state's percent of ELLs (the total number of ELLs in the state divided by total enrollment), which is reported here.

Emergent bilingual students are more likely than their native English speaking peers to come from low-income families. This trend can be seen in Figure 1, which shows the relationship between average district poverty rates and the average percent of students classified as ELL at the district level for 2012-13 in Texas (left panel) and in all other U.S. districts (right panel). Each circle represents a school district, with the size proportionate to district enrollment within each panel. The regression lines demonstrate that while both Texas and all other U.S. districts have positive relationships between poverty rates and ELL concentration, the relationship is stronger in Texas.

FIGURE 1

The relationship between district poverty rate and the percent of students in each district classified as English language learners in Texas and in all other school districts, 2012-13



Note: each circle represents a school district, with size proportionate to district enrollment within each panel. The slope of the regression line is 0.74 for Texas and 0.33 for all other districts.

Source: Authors' calculations based on U.S. Census Bureau data and NCES Common Core of Data.

The following three sections explore (a) research on the implementation of bilingual education, (b) studies of the cost of bilingual education models, and (c) how state funding for bilingual education has changed over time in both Texas and nationally.

Part 1. Implementation of Bilingual Education

Several large-scale research projects at the University of Texas El Paso focus on the implementation of bilingual education in the El Paso region. Project Leadership in English Acquisition, Academic Achievement, and Development (LEAD) focuses on the expansion of dual language education in El Paso schools. Project LEAD has led to three studies that focus on (a) central office practices in the context of dual language; (b) school leadership in dual language education schools that embodies a social justice framework; and (c) the role of family-school

partnerships within the context of bilingual education. The following section describes the key findings from each of these studies and explores implications for practitioners.

Findings for Part 1: Lessons for Practitioners of Bilingual Education

The first study focuses on the actions of district leaders in the El Paso Independent School District.^v The study shows superintendents can implement wide-scale district reforms by understanding their local context, drawing on available political capital, and framing her or his district's past educational injustices in ways that mobilize key stakeholders. For example, one superintendent we studied gained community support for implementation of dual language education as a method for valuing students' cultural assets. He then built practitioner support for dual language by creating after school teacher roundtables. These teacher committees made the reform feel "more authentic, like it wasn't just this top-down thing."

A second study explores principals' use of social justice leadership frameworks.^{vi} The study demonstrates how principals can use dual language education to support inclusive learning environments. Analyses of an exemplary principal describe the founding of a dual language program as part of her school's gifted and talented (GT) program. The principal identified and recruited students from around the district who were classified as ELL and eligible to enroll in the school's GT program. She enrolled both native English speakers and ELLs into the dual language program, creating a two-way dual language model that served both native English speakers and ELLs. The principal recalled, "I knew I had GT students there [who were ELLs], but they weren't labeled GT... I thought to myself, some of these students are so bright... This was an opportunity for them." Later, with approval from the district, she expanded the dual language program to students who were not eligible for GT classrooms, given their standardized exam scores. The study of this exemplary principal provides lessons for local policymakers and

practitioners. District leaders must recognize visionary school leaders and provide them with flexibility. School leaders should consider ways to break down traditional boundaries separating high- and low-achieving students. Finally, principal preparation programs may consider assigning principal candidates to observe and receive mentoring from veteran principals.

A third study from Project LEAD explores the role of family-school relationships in the context of dual language education.^{viii} The study shows that strong family-school relationships are essential for effective implementation of bilingual education generally, but particularly for dual language education models. Research based on project LEAD highlights the importance of valuing all stakeholders – including principals, teachers, parents, and students – for educational reform to have impact. One district administrator noted, “We have to build capacity and we have to make stakeholders know we care about them so they will go the extra mile... Principals must do this.” Principals must be aware of how leadership decisions were made in the past, including whether teachers and parents were involved, and ask whether there are systems in place within the school and community to understand the needs of parents, teachers, and students. In sum, research for project LEAD provides important lessons for superintendents and district leaders, school building leadership, and family-school relationships.

Part 2. Cost of Bilingual Education Models

In Part 2 we review literature on the cost of instructional models for emergent bilingual students and describe a study of the cost of dual language and transitional bilingual models based on implementation in El Paso, Texas schools.

Prior Research on the Cost of Instructional Models for ELLs

Despite the large literature on program effects, very few studies compare the costs of instructional programs for ELLs. One study compared the per-student costs of maintaining

transitional and developmental bilingual programs, pull-out English language courses for ELLs (i.e., English as a second language, ESL), dual language, and a program called Sheltered English in which teachers use activity-based lessons and limit the use of English.^{viii} ELL programs add only minimal classroom costs, whereas most of the additional costs associated with ELL instructional programs were outside the classroom, resulting from staff time of special resource teachers and administrative staff. That study showed that in total, ELL programs result in approximately a 30% increase in costs per student, on average, across programs. Although ESL and Sheltered English were the most and least costly, respectively, differences in cost stemmed from local decisions rather than specific program design. That is, the primary drivers of costs were more related to local resource allocation decisions and less related to the particular instructional model being implemented. These results are similar to a more recent statewide analysis of the cost of dual language programs in Texas, which found that dual language programs result in increases in costs that exceed transitional bilingual, but substantial variation in costs exists across sites using the same model.^{ix}

Other methods used to assess cost in education focus on the additional costs associated with an additional ELL student (as opposed to the additional cost of ELL instructional programs). These studies have direct policy relevance for state legislatures designing school finance systems because the findings insights into how different types of school districts should be funded. For instance, Duncombe and Yinger (2008) find that each ELL student is associated with an increase in per-student cost of 20% to reach the same state academic standards as non-ELL students. These additional costs are allocated to instructional programs or interventions that improve outcomes for ELLs.

Findings for Part 2: The Costs of Dual Language Education

A recent study from the Center for Education Research and Policy Studies at UTEP compares the cost of implementing dual language models to other instructional programs for emergent bilingual students, such as English as a Second Language and transitional bilingual education programs. The study is based on a school district with a high-ELL population that implemented a districtwide dual language education program. Cost estimates are derived from case studies of elementary, middle, and high schools that transitioned from using various instructional programs for ELLs to a schoolwide dual language education program. A total of four elementary schools, two middle schools, and two high schools were included in the study. In each setting, schools began the model with just the earliest grade within the school (e.g., kindergarten in elementary schools or sixth grade in middle schools), and expanded the program by one grade each year until all grades offered dual language courses.

Results showed that the vast majority of costs associated with implementation of dual language result from staff time for (a) administrator planning; (b) communication with families; and (c) teacher certification and professional development. Other costs included text books in a second language and substitutes. The per-student yearly cost of implementing dual language were generally lower during the districtwide roll out, compared to schools implementing the program in isolation. The cost of dual language education ranged from \$896 to \$1,568 across schools, representing an increase in expenditures of between 10% to 16%. The study also shows that start-up costs represent a substantial proportion of the overall costs of implementing dual language education models. Finally, the annual per-student cost of transitional bilingual – in which students transition to English-only instruction – is similar to that of dual language education.

Part 3. Funding for Bilingual Education

In Part 3 we report the findings of a recent study showing that bilingual education is underfunded in both Texas and nationally. Analyses compare funding rates in district with high and low proportions of students classified as ELL. We first provide background information on the funding for ELL programs and summary statistics for high- and low-ELL districts. We briefly describe the data and analytic approach, and then report our findings. Additional information related to these results are included in Knight and DeMatthews (2016).^x

Policy Context for School Finance and Emergent Bilingual Students

Funding for ELL Programs. While a small portion of federal funding supports bilingual education through Title III grants, the majority of funds allocated specifically for ELLs comes from state sources. Many state school finance systems provide specific weights for students classified as ELL that increase a school district's per-student base state funding by a given amount. For example, the 0.1 weight used in Texas implies that districts receive 10% more funding over and above the base per-pupil allotment (\$5,040 for 2014-15) for each ELL student. Theoretically, student weights should be based on the marginal costs associated with instructional programs for ELLs. Many argue that the weights currently established in state school finance systems are often too low, and likely determined based on political and budgetary considerations rather than empirical evidence of actual cost.^{xi}

Approximately 37 states provide specific funding for students learning English.^{xii} Most of those states use student weights that range from a low of 0.1 (in Texas) to as high as 2.5 in Georgia, but average around 0.3. Many other states provide a per-student dollar amount (e.g., \$1,000 per student in New Hampshire and \$290 per student in Idaho) or allocate a total amount across districts statewide, based on the number of student enrolled in programs for ELLs in each

district. In all other states, state funding for ELLs comes in block grants from the general education fund or is drawn from funding allocated for low-income students.

Most studies and policy reports of school district funding gaps compare high- and low-poverty districts. For example, the Education Trust publishes annual policy reports on funding gaps, but the most recent report to examine gaps between high- and low-ELL districts was published eight years ago and based on 2005 data. That study found that of the eight states that had at least 10 percent of its student population classified as ELL, five spent less in high-ELL districts compared to low-ELL districts, two spent about the same, and only Alaska allocated greater funding levels to districts with the highest percent of ELL students. Two more recent studies that focused just on Texas found no significant relationship between funding rates and the percent of students enrolled in bilingual education in Texas school districts.^{xiii} However, none of these studies compare funding and local resources for high-ELL districts to that of *otherwise similar* low-ELL districts (i.e., none statistically control for differences in local cost factors).

Characteristics of high- and low-ELL districts. Table 2 shows characteristics of districts nationally with below 0.5% ELL students and with more than 10% ELL students. The first two columns show the differences between high- and low-ELL districts in 2007-08, in Texas. The next two columns show the same differences for 2012-13. Columns 5-8 display the same information for all other U.S. school districts. In both contexts, high-ELL districts have greater proportions of students of color and in poverty, lower graduation rates, and score lower on standardized exams. High-ELL districts also have higher enrollment and are located in higher cost labor markets, both in Texas and nationally.

TABLE 2

Summary statistics for districts with low % English language learners and high % English language learners, Texas and all other U.S. Districts, 2007-08 and 2012-13

	Texas school districts				All US school districts ^a			
	2007-08		2012-13		2007-08		2012-13	
	≤ 0.5%	≥ 10%	≤ 0.5%	≥ 10%	≤ 0.5%	≥ 10%	≤ 0.5%	≥ 10%
<i>Panel A: Average district characteristics and student demographics / outcomes</i>								
% Poverty	18.1%	29.1%	21.9%	28.6%	15.7%	19.6%	18.6%	24.4%
% FRL	44.1%	52.6%	51.5%	71.3%	38.9%	57.5%	44.2%	64.3%
% ELL	0.1%	18.0%	0.1%	19.3%	0.1%	25.1%	0.1%	23.3%
% SPED	12.7%	9.5%	9.7%	8.5%	14.7%	11.8%	14.8%	11.7%
% URM	18.9%	75.6%	26.6%	71.7%	11.6%	56.8%	14.1%	60.3%
Grade 3 ELA	0.018	-0.758	-0.207	-1.013	0.142	-0.767	0.108	-0.786
Grade 3 Math	-0.005	-0.373	-0.145	-0.493	0.109	-0.651	0.076	-0.721
Fresh. grad. rate	83.6%	70.3%	n/a	n/a	83.7%	73.6%	n/a	n/a
Avg. Dist. Enrol.	734	15,004	422	11,081	1,424	8,979	1,288	8,987
Cost of Wage	1.14	1.24	1.24	1.39	1.20	1.33	1.30	1.45
Num. of districts	153	123	95	256	5,831	1,416	5,273	1,418
<i>Panel B: School inputs</i>								
Funding per Stu.	14,242	11,436	16,563	12,381	12,705	12,514	13,928	12,840
Federal	945	1,257	1,055	1,365	848	1,406	963	1,479
State	6,070	5,922	5,176	5,002	6,544	6,678	6,790	6,351
Local	7,228	4,257	10,332	6,014	5,313	4,429	6,174	5,009
Expend. Per Stu.	10,267	9,085	11,107	9,440	10,610	10,564	11,835	10,942
Avg. salaries	36,234	39,287	39,581	41,813	43,795	53,864	47,502	56,672
Staff per 100 students								
All Staff	18.2	15.6	17.6	14.9	14.4	12.0	14.6	11.4
Teachers	9.67	7.63	9.70	7.54	7.74	6.36	7.87	6.13
Guid. Coun.	0.44	0.28	0.39	0.26	0.36	0.24	0.38	0.26
Sup. Staff	0.53	0.42	0.57	0.50	0.58	0.63	0.71	0.59

^a Excludes Hawaii and Washington D.C. because these districts are excluded from the analytic sample.

Note. FRL stands for free or reduced price lunch; ELL stands for English language learner; SPED stands for special education students; URM stands for underrepresented minority; and Avg. Dist. Enrol. is the average district enrollment. Grade 3 ELA and Math refer to scores on state standardized exams, standardized for national comparisons (taken from Reardon et al., 2016) so that the mean is 0 and the standard deviation is 1.

The bottom panel of Table 2 shows that high-ELL districts in Texas received \$2,806 fewer dollars per student than low-ELL districts in 2007-08. By 2012-13, that gap increased to \$4,181. For all other US districts, the funding gap between high- and low-ELL districts increased from \$191 to \$1,088 from 2007-08 to 2012-13. In contrast, in both Texas and nationally, high-

ELL districts had higher average salaries than low-ELL districts; however, the salary advantage for high-ELL districts decreased in the years following the Great Recession (from 2007-08 to 2012-13). Although the per-pupil funding rates appear to increase over time, these nominal dollar values are not adjusted for inflation. The bottom four rows of Table 2 show that fewer staff members, teachers, guidance counselors, and support staff were employed per student in 2012-13 than in 2007-08. As with funding and spending rates, high-ELL districts employed fewer teachers, guidance counselors, support staff, and overall staff members per student than low-ELL districts, and the gap between high- and low-ELL districts expanded during the period of recessionary budget cuts.

These summary statistics do not control for differences in other local cost factors across school districts. District enrollment size, the average cost of labor in the region, and population sparsity all impact the cost of educational production. Comparisons of funding rates should control for these differences in local costs. Below we briefly describe data sources and methods for making these local adjustments. We refer the reader to Knight and DeMatthews (2016) for additional information.^{xiv}

Data and Analytic Approach

The analyses draw on district-level data from a variety of sources including the National Center of Education Statistics, the U.S. Census Bureau, the Education Comparable Wage Index dataset (Taylor & Fowler, 2006), and the Texas Education Agency, Public Education Information Management System, for school years 2007-08 to 2012-13. The analytic dataset includes 6,108 district-year observations over six years for Texas and 75,760 for analyses of all U.S. districts. For 2012-13, the sample includes 1,018 districts for Texas and 12,747 nationally.

To adjust funding and resource levels for local cost factors, we estimate a series of

models that predict district funding rates and other resource measures based on the percent of ELL students in the district. Models control for the local cost of labor, district size, population density, and the percent of students in special education and eligible for free and reduced price lunch. These controls allow us to compare high-ELL districts to *otherwise similar* low-ELL districts. The models include state and year fixed effects which allow for comparisons among districts in the same state during the same school year. For simplicity, we present only the predicted values, adjusted for local differences in costs based on the models described here.

To examine whether high-ELL and otherwise similar low-ELL districts in Texas levy different tax rates or have different property values, we run similar models, this time substituting the outcome variable for districts' local property tax rates, whether the district is levying the highest legally permitted tax rate (1.17% in Texas) and the district's local per-pupil property values. In short, these models show how high- and low-ELL districts differ in their local tax effort decisions and local property values, and how those relationships changed over time during the recessionary budget cuts in Texas.

Findings for Part 3: Funding for Bilingual Education in Texas

Funding disparities and changes since the Great Recession. Findings are reported in Tables 3 and 4. Table 3 shows adjusted funding and resource levels for districts in Texas at the 5th and 95th percentile of ELL student concentration (i.e., districts with 0% ELLs and with 22% ELLs), for 2007-08 (Panel A) and 2012-13 (Panel B). Values are based on regressions that adjust for differences in local costs (described earlier). The first row of Column 1 shows that the average high-ELL district received \$9,017 per student in 2007-08, whereas otherwise similar low-ELL districts received \$9,301 in state and local funding per student, a difference of \$284. The next two columns show that while high-ELL districts received a greater proportion of state

funding in 2007-08 (\$4,481 per student, compared to \$3,348), the large disparity in local funding between high- and low-ELL districts removed this funding advantage. As a result, high-ELL districts had fewer teachers, guidance counselors, and support staff per student (but slightly higher average salaries), compared to low-ELL districts (Columns 4 to 7).

Panel B shows the same results for 2012-13, after Texas legislators implemented substantial budget cuts to K-12 education. The first column shows that while the funding disparity decreased in 2012-13, high-ELL districts still received \$81 less per student than otherwise similar low-ELL districts. Interestingly, the slight decline in the funding disparity resulted from local, rather than state decision-making. Column 2 of Table 3 shows that state funding actually became less progressive during the period of recessionary budget cuts (implying that high-ELL districts bore an uneven share of budget cuts).

TABLE 3

Funding and resource levels for high- and low-ELL districts in Texas, 2007-08 to 2012-13, adjusted for differences in local cost factors

	State & local funding per student	State funding per student	Local funding per student	Average Salaries	Staff per 100 students		
					Teachers	Gd. Coun.	Sup. Staff
<i>Panel A: 2007-08</i>							
High ELL districts	9,017 (125.25)	4,481 (61.93)	4,536 (150.74)	43,706 (149.72)	6.738 (0.03)	0.224 (0.00)	0.421 (0.01)
Low-ELL districts	9,301 (115.98)	3,348 (57.35)	5,953 (139.59)	42,964 (138.65)	6.873 (0.03)	0.227 (0.00)	0.449 (0.01)
Difference	-283.78+ (170.70)	1,133*** (84.40)	-1,417*** (205.446)	741.60*** (204.05)	-0.134*** (0.038)	-0.002 (0.004)	-0.288* (0.139)
<i>Panel B: 2012-13</i>							
High ELL districts	9,009 (95.20)	4,440 (47.07)	4,569 (114.58)	43,325 (113.80)	6.483 (0.02)	0.221 (0.00)	0.460 (0.01)
Low-ELL districts	9,090 (126.42)	3,639 (62.51)	5,450 (152.15)	43,663 (151.13)	6.611 (0.03)	0.240 (0.00)	0.510 (0.01)
Difference	-80.84 (158.26)	801.01*** (78.25)	-882.92*** (190.471)	-337.46+ (189.18)	-0.128*** (0.035)	-0.019*** (0.004)	-0.050*** (0.013)

Note. Numbers shown here are based on regression models that adjust for local cost factors. High- and low-ELL districts are those at the 5th and 95th percentile of % ELL (about 0% and 22% ELL). Standard errors are shown in parenthesis. *** p<.001, ** p<.01, * p<.05, + p<.10.

However, high-ELL districts were able to increase their local tax revenues, while low-ELL districts experienced a slight decline. The last four columns show that in the years following the Great Recession, low-ELL districts created or expanded their resource advantages over otherwise similar high-ELL districts. For example, in 2012-13, average teacher salaries were \$337 lower in high-ELL districts than in low-ELL districts, and high-ELL districts employed fewer teachers, guidance counselors, and support staff. In summary, prior the recession, the Texas school finance system provided more state funding for high-ELL districts, but strong dependency on local funding resulted in inequitable distribution of state and local funding between high- and low-ELL districts. During the recessionary period, state education funding cuts disproportionately impacted high-ELL districts. Although high-ELL districts increased their local tax revenues more than otherwise similar low-ELL districts, funding disparities remained in the post-recession period because of the way state funding cuts were distributed.

Underlying mechanisms of funding disparities. State legislators control state funding for education, whereas property values and voter-approved local tax rates largely determine local funding levels. Table 4 shows (a) why low-ELL districts generate greater local revenues and (b) how high-ELL districts increased their local funding. In short, high-ELL districts increased their local tax rates at a faster rate than low-ELL districts in the years following the Great Recession. While high-ELL districts have substantially lower per-student property values compared to low-ELL districts, this gap was relatively stable during the recessionary years, with high-ELL districts experiencing modest (but not statistically significant) increases in property values and low-ELL districts showing small decreases in property values per student.

Districts require local voter approval to raise property tax rates to the highest possible level (1.17%). The first panel of Table 4 shows the adjusted average percent of districts levying

TABLE 4

Predicted values for high- and low-ELL districts in Texas based on models predicting whether a district levies the highest possible tax rate, the M&O tax rates, I&S tax rates, and local per-student property values, 2007-08 to 2012-13

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Diff. 2007-08 to 2012-13
<i>Panel A: Districts levying the maximum local M & O property tax rate</i>							
Low-ELL	0.029 (0.015)	0.034 (0.017)	0.081 (0.016)	0.086 (0.016)	0.113 (0.016)	0.166 (0.017)	0.137*** (0.023)
High-ELL	0.026 (0.017)	0.081 (0.011)	0.109 (0.011)	0.166 (0.011)	0.165 (0.012)	0.228 (0.013)	0.202*** (0.021)
<i>Panel B: Local district property tax rate for maintenance and operations (M & O, fully equalized tax base)</i>							
Low-ELL	1.047 (0.002)	1.048 (0.003)	1.053 (0.003)	1.052 (0.003)	1.058 (0.003)	1.064 (0.003)	0.018*** (0.004)
High-ELL	1.046 (0.003)	1.053 (0.002)	1.056 (0.002)	1.065 (0.002)	1.065 (0.002)	1.070 (0.002)	0.024*** (0.003)
<i>Panel C: Local district property tax rate for bond repayment (I & S, partially equalized tax base)</i>							
Low-ELL	0.267 (0.005)	0.283 (0.005)	0.286 (0.005)	0.289 (0.005)	0.287 (0.005)	0.286 (0.005)	0.019** (0.007)
High-ELL	0.250 (0.005)	0.252 (0.004)	0.250 (0.004)	0.247 (0.004)	0.247 (0.004)	0.248 (0.004)	-0.002 (0.007)
<i>Panel D: Local district property value per pupil (\$1,000s)</i>							
Low-ELL	454.860 (12.891)	435.181 (14.181)	409.217 (13.850)	399.098 (13.842)	410.580 (13.857)	404.212 (14.053)	-50.648 (19.070)
High-ELL	342.559 (13.909)	351.968 (9.609)	320.252 (9.646)	309.171 (9.603)	311.632 (9.747)	352.134 (10.573)	9.576 (17.471)
<i>Panel E: Differences between low- and high-ELL districts</i>							
Max. tax rate	-0.003 (0.023)	0.065* (0.020)	0.121*** (0.020)	0.080*** (0.020)	0.053** (0.020)	0.062** (0.021)	0.065* (0.031)
Average M&O rate	-0.001 (0.004)	0.005 (0.003)	0.003 (0.003)	0.012*** (0.003)	0.007* (0.003)	0.006+ (0.003)	0.007 (0.005)
Average I&S rate	-0.016* (0.007)	-0.032*** (0.007)	-0.036*** (0.006)	-0.042*** (0.006)	-0.040*** (0.006)	-0.038*** (0.007)	-0.021* (0.010)
Prop. value per pupil	-112.3*** (18.965)	-83.2*** (17.130)	-89.0*** (16.878)	-89.9*** (16.847)	-98.9*** (16.941)	-52.1** (17.586)	60.2* (25.864)

Note. High- and low-ELL districts are those at the 5th and 95th percentile of % ELL, respectively (about 0% and 22% ELL). *** p<.001, ** p<.01, * p<.05.

the highest possible tax rate allowed under Texas law in each year following the Great Recession. While all districts became far more likely to select the highest tax rate, high-ELL districts were 6.2 percentage points more likely to levy the highest possible rate by the 2012-13

school year (22.8% of high-ELL districts assessed the highest tax rate, while 16.6% of low-ELL districts did so). Panel B shows similar results for the average local maintenance and operation property tax (M&O taxes, used to pay for salaries and other yearly expenses). While all districts increased M&O tax rates, high-ELL districts increased their tax effort by more than low-ELL districts. Panel C shows that low-ELL districts were more likely to pass school bonds during the recession (bonds are paid by levying Interest and Sinking, or I&S taxes). The propensity of high-ELL districts to pass fewer bonds is not surprising given that the state does not equalize funding for bond repayments to the same extent as for M&O taxes.^{xv} As a result, because of their lower property values, high-ELL districts must levy higher tax rates in order to pay back the same bonds over the same time frame. Finally, Panel D shows that high-ELL districts, on average, had property values of \$352,134 per student in 2012-13, whereas per-student property values in otherwise similar low-ELL districts was \$404,212, a difference of about \$52,000 per student (Panel E shows differences between high-ELL districts and otherwise similar low-ELL districts in each year).

Summary and Policy Implications

The studies described here offer policy implications for both local practitioners and state legislators. Part 1 provides important lessons for educators implementing dual language education models. One study of district-level administrative leadership demonstrates how superintendents can improve implementation of bilingual education by mobilizing key stakeholders within their local context. Another study showed how school leaders can use bilingual education models to support more inclusive learning environments. In Part 2, we report the findings from a study of the cost of implementing dual language programs. We found that the cost of dual language education ranges from \$896 to \$1,568 per student across schools,

representing an increase in costs of between 10% to 16%. Much of these costs resulted from start-up expenses that diminish after the first five to seven years of implementation. These findings suggest the need for state legislators to provide additional funding for districts that plan on implementing dual language education models or for those with high proportions of ELL students. Alternatively, state departments of education could provide special funding for implementation of bilingual education models.

Part 3 reports the results of a study showing that districts in Texas with high proportions of ELL students receive less funding than otherwise similar low-ELL districts. For districts with similar proportions of students in poverty, enrollment size, and urbanicity, those with more ELL students receive slightly more state funding, but far less local funding than low-ELL districts. High-ELL districts in Texas choose higher local tax rates, on average, compared to otherwise similar low-ELL districts. This finding largely counters the myth that immigrant families or families of ELL students are less willing to support higher taxes for local school funding. Lower property values and insufficient state funding prevented high-ELL districts from receiving an equitable level of funding. Great Recession state funding cuts also disproportionately impacted high-ELL districts in Texas. At the same time, high-ELL districts passed fewer bonds, perhaps because the state does not equalize funding for bond repayments to the same extent as taxes for basic maintenance and operations.

These findings suggest that increasing base funding for ELLs through weights or other mechanisms is necessary, but may not be sufficient for providing equitable learning opportunities. States need to protect the highest-need districts from fiscal crises in order to maintain stable learning environments. Moreover, as demonstrated by analyses of the Texas school finance system, equalizing only one part of the tax base (the M&O taxes), without

providing additional subsidies for bond repayments, will not necessarily close fiscal disparities between high- and low-ELL districts.

Endnotes

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- ^{xv} See for example Knight, D. S. (2016). Were high-poverty districts in Texas disproportionately impacted by state funding Cuts? School finance equity in Texas following the Great Recession (CERPS Working Paper 2016-1). El Paso, TX: University of Texas at El Paso.

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