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Are High-Poverty School Districts Disproportionately Impacted by State Funding Cuts? School Finance Equity Following the Great Recession

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Abstract

The Great Recession caused states around the country to make substantial budget cuts to public education. As a result, districts that rely more heavily on state funding – those with greater concentrations of students in poverty – may be disproportionately impacted by the Great Recession funding cuts; however, little prior research examines this issue. This study examines how state school finance systems responded to recessionary funding cuts on average nationally. The study then draws on state specific data to examine local district taxation patterns in response to state spending cuts. The study finds that (a) on average across states, high-poverty districts experienced an inequitable share of funding and staffing cuts following the Great Recession; (b) changes in the income-based funding gap varied across states; (c) higher-poverty districts increased local tax rates at a faster rate than low-poverty districts in Texas; (d) the funding gap increased in Texas by more than in 43 other states; (e) lack of subsidies for facilities funding and other idiosyncrasies within the Texas school finance system prevented high-poverty districts from maintaining equitable funding levels, despite increasing tax rates at a faster rate than otherwise similar wealthier districts; and (f) leveling up funding for high-poverty districts in Texas would cost the state $9.1 billion, a 17% increase in education spending. The study provides evidence on how school districts were impacted by recessionary spending cuts and how they responded, and offers alternative strategies for restoring state education budgets.

Are High-Poverty School Districts Disproportionately Impacted by State Funding Cuts? School Finance Equity Following the Great Recession

States implemented unprecedented cuts to public education funding following the Great Recession. Almost every state reduced its total K-12 funding from the 2007-08 school year to 2012-13 and very few have restored funding to pre-recessions levels (Leachman, Albares, Masterson and Wallace 2016). While federal stimulus funding helped alleviate some of the spending cuts during the 2009-10 school year, numerous districts around the country still conducted substantial budget cuts and staff layoffs (Goldhaber, Strunk, Brown and Knight 2016; Knight and Strunk 2015). When states reduce education funding, the burden of these cuts often falls most heavily on the districts that serve greater proportions of students in poverty and emergent bilingual students (Baker 2014). Meanwhile, these higher-need districts face additional costs to provide compensatory educational programs (Darling-Hammond 2013; Duncombe and Yinger 2008; Ladd 2012).

Prior research shows that school finance reforms – either court-mandated or those initiated solely through legislative action – lead to increases in spending for low-income districts, thereby closing gaps in resources and increasing state school finance equity (Murray, Evans and Schwab 1998). More importantly, several studies link court-mandated increases in spending to improved educational and labor market outcomes for low-income students (e.g., Card and Payne 2002; Jackson, Johnson and Perscio 2014). Few studies, however, examine the impact of recessions and state budget cuts on school finance systems, especially school resource equity.

The purpose of this study is to assess the extent to which high-poverty districts across the country experienced a disproportionate share of state funding cuts following the Great Recession. Analyses then draw on data specific to Texas to explore underlying causes of disparities in budget cuts and how high- and low-poverty districts differed in their responses to funding declines. The study examines the following research questions: (a) *To what extent are school districts compensated for higher rates of student poverty, and how did resource gaps change during the Great Recession?* (b) *To what extent did changes in the income-based funding gap vary across states?* And, (c) to *what extent did high- and low-poverty districts in Texas differ in their response to state funding cuts, if at all?*

I find that prior to the recession, high-poverty districts received $289 per student less state and local funding, on average, compared to otherwise similar low-poverty districts. By 2012-13, the funding gap between high- and otherwise similar low-poverty districts increased to $1,004 per student. Conditions for high-poverty districts were significantly worse in Texas, where the funding gap increased by more than in 43 other states. Growth in the funding gap nationally resulted from greater declines in state funding for high-poverty districts, compared to low-poverty districts. However, in Texas, the funding gap increased primarily as a result of substantial increases in local funding for low-poverty districts. Low-poverty districts in Texas increased their local revenues by relatively more than high-poverty districts by passing more bonds and experiencing far greater increases in local per-pupil property values. Meanwhile, high-poverty districts in Texas were more likely to levy the maximum allowed local tax rate and on average, increased local property taxes at a faster rate (and to a higher level) than low-poverty districts in the years following the recession. In short, states failed to protect their highest needs school districts in the years following the recession, both in Texas and nationally.

The following section synthesizes prior research that informs this study and shows how the current analyses address an important gap in the literature. I then provide additional policy context for Texas and nationally, describe the data, analytic approach, and findings and conclude with discussion and state policy recommendations.

Background Literature

Three board areas of research inform the current study. The first assesses equity and efficiency of state school finance systems and district resource allocation. A second set of studies focuses on lessons learned from budgetary cuts associated with the recent recession and the third area measures the impact of state school finance reforms on student outcomes.

Assessment of State School Finance Systems

Ideally, states rely on the best available evidence to improve their school finance systems in ways that promote adequacy and equity. Adequate finance systems provide sufficient school resources to meet state standards, while school finance equity is defined as the allocation of resources, broadly defined, that meets diverse student needs (Baker and Green 2015). Early analyses of school finance equity used measures of dispersion of per-pupil funding across districts (Berne and Stiefel 1994; Rolle and Liu 2007). Other analyses measured “fiscal neutrality” by assessing the correlation between per-student spending in a district and local property wealth (e.g., Cortez 2008; 2009; Goldhaber and Callahan 2001; Odden and Picus 2014). These measures do not account for differences in costs outside the control of districts such as higher labor costs or differences in need related to the student population (Baker, Farrie, Johnson, Luhm, and Sciarra 2017; Chambers and Levin 2009).

More sophisticated analyses take into account differences in cost and attempt to measure and control for inefficiency of districts (Duncombe and Yinger 2008; Imazeki and Reschovsky 2001). Although scholars debate the validity of cost and efficiency estimates (Hanushek 1997; 2007), there is consensus that comparisons of district spending should take into account differences in cost factors outside the control of districts (Duncombe 2006) and that effective state school finance systems compensate districts with higher cost factors and greater student need (Knight, 2012; Odden and Picus 2014; Verstegen 2011). Regardless of the specific methods used, most studies of state school finance systems find inequitable funding across high- and low-poverty districts. National studies of state school finance systems show that approximately one in five states allocates substantially more (10%) state and local funding to their highest-poverty school districts (e.g., Baker et al., 2017; Chingos, 2017; Ushomirsky and Williams, 2015). These prior studies focus on state and local revenues or total expenditures and do not specifically explore the impact of the Great Recession. The current study builds on previous research by incorporating additional resource measures such as staffing ratios and salaries and by focusing specifically on the impact of the recent recession.

Effects of the Great Recession on State School Finance Systems

Several recent studies analyze the impact of the Great Recession across and within school districts (Goldhaber et al. 2016; Plecki, Elfers and Finster 2010). These studies find that state aid cuts disproportionately impacted high-poverty districts, and state school finance systems generally become more inequitable following the recession (Baker, 2014; Estrada 2012; Evans, Schwab & Wagner, 2017; also see Freelon, Bertrand and Rogers, 2012 for qualitative analysis and practitioner survey data on the effects of the recession). While informative, these national studies do not focus on or offer policy implications specific to one state. The current study adds to this prior work by incorporating more detailed data from Texas that is not available in national datasets (local tax rates and property values). These data are used to explore the specific features of the Texas state school finance system that led to the disproportionate impact of the Great Recession on low-income districts.

Finally, two recent studies examine the effects of the Great Recession within school districts (Goldhaber et al. 2016; Strunk and Knight, 2015). Because teacher layoffs are typically conducted in order of reverse seniority within subject area, and high-poverty schools tend to employ the least experienced teachers, teacher layoffs associated with the Great Recession disproportionately impacted the high-poverty and high-minority schools *within* districts (Knight and Strunk 2015). Teacher layoffs resulted in a substantial increase in teacher churn across schools, further disadvantaging historically underserved schools (Goldhaber et al. 2016). In short, inequities within school districts likely magnify the disparate impacts of Great Recssion budget cuts.[1]

State School Finance Reform

Evidence from studies of school finance reforms suggests that school funding cuts for students in poverty lead to negative long-term outcomes. Most studies focus on how finance systems respond to legislative reforms and how reforms impact students' educational achievement and labor market outcomes (e.g., Card and Payne 2002; Murray et al. 1998; Springer, Lui and Guthrie 2009). Many of these studies are correlational and therefore may confound changes in educational spending with other changes that influence student outcomes (see Figlio, 2004 and Krueger 1999). A few studies use strong research designs to isolate the impact of changes in funding. For example, Guryan (2001) uses regression-discontinuity based on distinct eligibility-based increases in state aid created by a 1993 school finance reform that equalized spending across districts in Massachusetts. Guryan finds that increased spending improved grade 4 reading and math scores, primarily for lower achieving students. Another

[1] Other research looks more broadly at the impact of recessions. Not surprisingly, these studies find that lower-income and less-educated workers and people of color experience greater negative impacts of recessions (Farber, 2011; Kochhar, Fry & Taylor, 2011; Verick, 2009; Hines, Hoynes, & Krueger, 2001). Over a 30-year period, Hoynes, Miller, and Schaller (2012) found that labor market outcomes during recessions were consistently worse for disadvantaged groups, resulting in greater declines in wages and longer spells of unemployment.

study follows school finance reforms nationally over three decades, using differential timing of reforms to identify exogenous changes in spending (Jackson et al. 2014). The authors find that a 20% increase in educational spending during all 12 years of public schooling reduced the incidence of poverty later in life by 20% and increased adult wages by 25%, but only for students from lower-income families. Although the data provide limited information around mechanisms, these positive effects appeared to result from more teachers and counselors per student, leading to smaller class sizes and more adults per student in schools. Other studies applying similar comparative time series methods to examine the effects of exogenous shocks in spending generated from court-mandated school finance reforms have reached similar conclusions (Candelaria and Shores 2017; Lafortune, Rothstein and Schanzenbach 2016).

Based on the Jackson et al. (2014) results, a student in a high-poverty district who experiences a decline in spending of around 10% would see a meaningful impact on their life outcomes. If exposed to this decline in funding at the time of entering school, and this lower funding level was in place for all 12 years of schooling, the results suggest that a student would experience a 15% decline in their likelihood of graduating high school, an increase in their likelihood of living in poverty of about 11%, and a decrease in their adult earnings of about 9% or $3,500 per year.[2] In short, the extent to which districts are compensated for higher poverty rates – and the specific effects of the Great Recession –have real consequences for students.

Policy Context in Texas and Nationally

Texas provides a useful context for examining school finance issues. The state has a significant influence on education policy nationally, a long history of court battles attempting to

[2] This dollar figure is based on the descriptive statistics shown in Table 1 of Jackson et al. (2014). Note that the Jackson et al. study is based on court-ordered increases in spending rather than decreases in spending. For estimates of the negative short-term impacts of the school budget cuts associated with the Great Recession, see Shores and Steinberg (2017).

establish an equitable finance system, and substantial overall size (roughly 10% of all K-12 students in the U.S.) and student diversity, which is increasingly reflected in national trends (Baker 2012; Picus 1994; and see Cuban 2010 and Preuss 2009 for the state's influence on education policy nationally). In 2011, the 82nd Texas Legislature cut K-12 public education by $4 billion for the 2011-12 and 2012-13 school years (Barta 2011). The following year, over 600 school districts in Texas sued the state for violating the state constitutional mandate of providing an adequate education for all students (Collier 2016). Ultimately, the Texas Supreme Court ruled the finance system constitutional in May of 2016; however, the court's opinion labeled the Texas educational finance system antiquated and urged the Legislature to implement reforms (*Texas Taxpayer and Student Fairness Coalition, et al. v. Scott, Combs, and the State Board of Education* 2016). For the first time in recent memory, Texas state policymakers are moving toward passing school finance reform without a court mandate (Swaby 2017). The recent Texas Supreme Court opinion and potential state legislative actions make an analysis of Texas school finance particularly timely.

Property Tax Revenues in Texas

Like many states, Texas school districts generate local tax revenues through annual property taxes and school bonds (which must be spent on school facilities). The current Texas school finance system is described in detail in other publications (e.g., Texas Taxpayers and Research Association [TTARA] 2014; Davis, Dawn-Fisher, McKenzie, Rainey & Wall 2014). I focus on the aspects pertinent to the current analysis and direct the interested reader to other more detailed descriptions.

Local tax revenues are generated through Maintenance and Operation ("M&O") taxes, which pay for salaries and operating expenses, and Interest and Sinking ("I&S") taxes, which are used to repay school bond. In 2013-14, Texas school districts raised $19.7 billion through M&O tax revenues and $4.9 billion through I&S tax revenues (TTARA 2014). The state provides low-property wealth districts with additional funding by equalizing the tax base from which M&O tax revenues are generated. In other words, the state ensures that low-wealth districts can generate the same funding for each increase in their tax rate as the district at the 95th percentile of property wealth. The state also sets a maximum amount of funding that high-property wealth districts ("Chapter 41 districts") can generate, and additional money is recaptured and used to fund property poor districts (through tax-base equalization). Referred to as the "Robin Hood" plan, this provision is unique to the Texas school finance system (Hoxby and Kuziemko 2004).

The revenues raised through I&S taxes are not subject to Chapter 41 recapture and the funding base on which I&S taxes are levied are not necessarily equalized across high- and low-poverty districts. The state equalizes tax bases for I&S taxes only up to $35 per student for each penny (0.01%) of property tax. Districts must apply for tax base equalization and the state provides only a limited amount funding, up until $250 per student has been allocated (funding the lowest-property wealth districts first).[3] As a result, districts debt service funding lacks state equalization. I&S tax policies have not been updated since 2001 and substantial research on school facilities funding in Texas highlights how lack of equalization contributes to an inequitable system (Duncombe and Wan 2009; Rivera and Lopez 2017).

School Funding in Texas and Nationally

The Texas school system currently educates over 5 million students under a budget of approximately $49 billion for the 2014-15 school year (Texas Legislative Budget Board 2016).

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[3] This foundation program is called the Instructional Facilities Allotment. The Legislature also authorized the Existing Debt Allotment (EDA) foundation program in 1999 to assist low-wealth districts in repaying existing bonds (TEA, 2016). The EDA provides $35 dollars per student per penny of tax rate up to $0.29.

For both Texas and nationally, the 2009-10 school year was the first time in at least 15 years (i.e., as far back as data are available) that nominal state and local funding decreased, on average, from the prior year. Federal funding saw its largest increase that year, when stimulus funding was distributed, but federal funding declined in subsequent years. In the years prior to 1998-99, Texas districts received approximately equal to or greater than the national average state and local funding per pupil. Since the 1999-00 school year, Texas has provided districts with less state and local funding than the national average, even as the average poverty rate has been 5-6 percentage points above the national average. Given the higher poverty rates in Texas compared to the rest of the country, the state has historically received more federal dollars per pupil than the average U.S. district (before applying cost adjustment to Texas districts).

Table 1 shows differences in average student demographics and resources in high- and low-poverty districts, in 2007-08 and 2012-13, for Texas districts and for all other districts in the country. In both Texas and the rest of the country, poverty rates and eligibility for the FRL program increased from before to after the recession. For example, from 2007-08 to 2012-13, the average poverty rate for districts in Texas at or above the 75th percentile of poverty rose from 33% to 36%. Nationwide, the average poverty rate for the highest poverty districts rose from 25% to 30%. The bottom panel of Table 2 shows that in both Texas and nationally, resource advantages for higher-poverty districts narrowed and resource gaps for higher-poverty districts increased. For example, in 2007-08, districts in the bottom quartile of the poverty distribution (wealthier districts) received total per-pupil revenues (PPR) of $11,343 per student, whereas those in the top poverty quartile received $12,142, a difference of $799. By 2012-13, wealthier districts received $213 *more* in total revenues. Similarly, from 2007-08 to 2012-13, Texas districts in the bottom quartile of poverty saw a 0.2 FTE increase in the number of teachers per

100 students, while districts in the bottom quartile experienced a 0.4 FTE decline in the number of teachers per 100 students; similar trends existed nationally. These numbers provide cursory evidence that higher poverty districts incurred a disproportionate impact of recessionary budget cuts. These differences may also be due to changes in other cost-related factors such enrollment, other student demographics, or the cost of living. In the following section, I describe my analytic approach to exploring this issue further.

Data and Analytic Approach

Data

The analyses combine district-level data from the National Center of Education Statistics and the U.S. Census Bureau Small Area Income and Poverty Estimates with the Education Comparable Wage Index (Taylor and Fowler 2006) and data provided by the Texas Education Agency, Public Education Information Management System (PEIMS). PEIMS includes information on property wealth and assessed value per pupil, local tax rates, and the number of students in Texas enrolled in special programs. Although these data span school years 1994-95 to 2012-13, my primary interest is in 2007-08 to 2012-13.[4] Finally, for school years 2008-09 to 2012-13, I combine these data with district-level grade 3-8 achievement data provided by the Stanford Education Data Archive (Reardon et al. 2016).

The analytic dataset includes a total of 248,331 district-year observations over 19 years (19,318 in Texas) including 12,723 districts observations in 2012-13 nationally and 1,004 in Texas. I exclude outlier district-observations that have more than $70,000 in total per-pupil revenues in any particular year (a total of 23 in 2012-13 and 0.2% of all districts that would otherwise have been in the sample). Eight of these cases were school districts in Texas and each

[4] In the four years prior to 1998-99, the proportion of students classified as limited English proficient is not available and I backwards impute these variables for districts with non-missing values in 1998-99.

of those involved districts with extremely high assessed property values.[5] The preferred model excludes these outliers because they may distort the relationship between funding and poverty rates. Sensitivity analyses show results change very little when these districts are included.

Analytic Approach

Assessing differences in resources across otherwise similar high- and low-poverty districts. For the analyses that address research question 1, I adjust per-pupil revenues in order to assess how much funding each district receives, relative to other districts with similar cost factors. Prior research suggests districts with lower total enrollment have higher production costs because of diseconomies of scale (Adams and Foster 2010; Gronberg, Jansen, Taylor and Booker 2005). Greater population sparsity increases the cost of transportation and other expenses that are out of the control of school districts (Duncombe and Yinger 2010). Districts in labor markets with higher average salaries also face higher costs because they must pay higher salaries to attract the same quality of workforce, compared to otherwise similar districts in lower labor cost areas (Taylor and Fowler 2005). Finally, districts with greater proportions of students enrolled in special education, classified as English language learners (ELL), or from low-income families face greater costs (Ladd 2012). Districts with very high concentrations of poverty face added challenges associated with peer interactions (Hanushek, Kain, Markman and Rivkin 2003).

I use two approaches to examine how average funding in otherwise similar high- and low-poverty districts changed during the recession. In the first approach, described in equation 1, I estimate separate regressions for each year. The model includes state fixed effects, φ_{ds}, the district poverty rate and its square, and interactions between poverty variables and the state fixed

[5] For example, Rankin ISD had an assessed property value of $11.3 million per WADA for school year 2012-13, far above the average of $562,000 for that school year. As a result, the district's local funding amounted to $87,532 per pupil, representing 89% of its total funding.

effects (labeled $\varphi_{ds} * f\,(POVERTY_{ds})$ in equation 1). This modeling strategy allows the relationship between poverty rates and outcomes to vary by state and year. I first estimate per-pupil state and local revenue (PPR_{ds}) across all districts and states, in each school year from 1994-95 to 2012-13, indexing for districts (d) and states (s):

$$PPR_{ds} = \beta_0 + \varphi_{ds} + f\,(POVERTY_{ds}) + \varphi_{ds} * f\,(POVERTY_{ds}) + \lambda\ COST\_FACTORS_{ds} + \varepsilon_{ds} \quad (1)$$

The vector labeled $COST\_FACTORS_{ds}$ includes controls for geographic differences in the cost of labor, the percent of students in the district with individualized education plans (IEPs), the percent classified as ELL, district enrollment size (dummy variables for whether the districts has between 2,000 and 500 students and less than 500), and population density as measured by a set of 6 dummy variables indicating the degree of the district’s urbanicity in a particular year. I do not adjust for inflation as the primary focus is on funding gaps across districts each year. Student demographics are only weakly correlated with student poverty rates (less than 0.4 in most cases) and therefore capture additional unique variation in local cost factors. Models run without the poverty squared term yield similar results, but I include this term given research cited earlier about how the relationship between costs and poverty rate changes at different levels of poverty concentrations (Hanushek et al. 2003).

The error term, ε_{ds}, captures differences in the per-pupil revenues within states across districts with otherwise similar observable cost factors. These differences may arise if state finance systems are compensating districts for unobserved cost factors such as career and technical education programs or for higher proportions of low-incidence (high cost) special education students (the data only permit controlling for the percent of students with IEPs, but not specific special education categories). Differences may also arise simply from idiosyncrasies in state school finance systems that allow two otherwise similar districts to receive different levels of funding in the same year, which is surprisingly common across states (this issue is referred to as horizontal equity; see Rose and Weston 2013 and Rolle and Lui 2007 for examples).

I then compute the predicted value of per-pupil revenues for districts in Texas and nationally at census poverty rates of 10%, 20%, and 30%.[6] These values translate roughly to the 10th, 50th, and 90th percentiles, respectively. The preferred model includes all districts in the U.S. because my goal is to compare districts in Texas to otherwise similar districts nationally. The state-by-poverty rate fixed effects allow the relationship between poverty rate and funding level to vary by state. Calculating the post-estimation predicted values provides adjusted funding rates at particular points in the poverty distribution (rather than just a coefficient for the poverty rate). In various extensions, I replace poverty rate with poverty rate percentile (within each state and year), the percent FRL, property values per pupil, and also run models on Texas districts only, adding Texas-specific covariates that align with student weights in the Texas school finance system. I use the standard errors of predicted values to determine if differences in funding between high- and low-poverty districts are statistically significant. Prior literature suggests that differences in funding of 5% are educationally significant and an increase of 20% can close two-thirds of the gaps in outcomes between children from high- and low-income families (Jackson et al. 2014).

Examining variation across states. To further explore how the relationship between funding and poverty rates changed over time, and to explicitly parse out variation in changes in the funding gap across states over time, I pool school years and use three-way interactions between year, state, and poverty rate. These models are run only for school years 2007-08 to

[6] Adjusted per-pupil revenues are estimated using the margins command in STATA, which computes the predicted value of the outcome measure at specified values (i.e., at particular poverty rates and for particular states), holding all other variables constant at their observed levels (see Cameron & Trivedi, 2009 for more information on marginal predictions. The approach described here is similar to the one used in Baker (2014).

2012-13, using 2007-08 and Texas as the base year and state from which all other interactions are compared. The null hypothesis in these models is that the funding gap did not change from 2007-08 to 2012-13 in Texas. I test the null hypothesis by examining whether the interaction between the poverty variable and the 2012-13 year fixed effect is statistically different from zero (because the Texas-by-2007-08 year fixed effect is the reference group for all other state-by-year fixed effects). All other poverty rate and state-by-year fixed effects interactions show the level of variation in the change in the funding gap across states (research question 2) and in particular, how changes in the funding gap differed from that of Texas.

The model is similar to a difference-in-difference (DID) framework (Bertrand et al., 2004), except that both high- and low-poverty groups were "treated" (by recessionary funding cuts) and the alternate hypothesis being tested is that the treatment effects differed from one group (high-poverty districts), compared to the other (low-poverty districts). For this reason, I explicitly examine the assumptions necessary for causal interpretation under a DID framework. For both approaches described above, I exchange the outcome measure, state and local per-pupil revenues, with a number of alternate funding and resource variables, including total funding per pupil, average staff salaries, and the number of teachers, counselors, support staff, and total staff per 100 students.

Exploring the underlying mechanisms of changes in resource gaps. To address the second research question, I use two approaches to examine potential underlying causes of changes in funding disparities during and after the recession. First, I examine whether changes in *local* tax revenues varied across high- and low-income districts in Texas and nationally. On the one hand, prior research suggests lower-poverty, higher-wealth districts may have greater capacity than high-poverty districts to increase local tax revenues in response to state funding declines (Hoxby 1998; Odden and Clune 2009; Picus 1991). On the other hand, because high-poverty districts typically receive a greater proportion of funding from state revenues (Kirst, Goertz and Odden 2007), high-poverty districts may feel more pressure to increase their local tax rates and local tax revenues following a decline in state funding.

Second, I draw on data specific to Texas to compare changes in local property values and tax rates (the underlying determinants of local tax revenues) across the district poverty distribution. High-poverty districts in Texas may rely especially on M&O tax revenues, since the state equalizes these tax bases up to the level of the 95th percentile of district property wealth (for the first 0.04% of additional taxes). In contrast, lower-poverty districts may rely on I&S tax increases because these districts do not rely on property wealth equalization and because I&S tax revenues are not subject to Chapter 41 recapture. In order to compare otherwise similar high- and low-poverty districts, I examine changes in revenue by funding source and changes in local property values using the model described in equation 1.

Findings

Changes in Resources and Outcomes across Districts

Results for research question 1 are shown in Table 2 and Figure 1. Each column in Table 2 is a separate regression predicting a different outcome (only relevant covariates are displayed). The models in Table 1 pool years 2007-08 to 2012-13 and include interactions between the poverty rate variables and state-by-year fixed effects, using Texas and 2007-08 as the base year and state. Because Texas and the year 2007-08 are the base year and state for all other state-by-year poverty rate interactions, the main effect of the poverty rate represents the relationship between poverty rate and funding level in 2007-08 in Texas. Thus the coefficient in the first row of the first column shows that in 2007-08, Texas school districts received about $9 per pupil less for each one percentage point increase in the district's poverty rate, other observable district cost factors being equal. That this coefficient is statistically insignificant for Texas suggests that in 2007-08 there was not a systematic relationship between funding levels and the poverty rate. The interaction with poverty rate and the state-by-year fixed effect (for 2012-13), shown in the second row demonstrates how funding across the poverty distribution changed in 2012-13, compared to 2007-08. Otherwise similar districts in Texas received $57 per pupil less in state and local funding for each one percentage point increase in the poverty rate, compared to the 2007-08 school year.

Figure 1 helps put these estimates in perspective by plotting state and local funding per student over time, for districts that have 10% poverty rate (roughly the 10th percentile) and districts with 30% poverty (the 90th percentile), in Texas (left) and all other states (right). Prior to the recession, low- and high-poverty districts in Texas received $11,349 and $11,039, respectively, creating an income-based funding gap of $311. By the 2012-13 school year, the average district with 10% poverty received $12,297 per student, whereas an otherwise similar district with 30% of students in poverty received $10,945 ($1,352 or 11% fewer dollars per pupil). These differences are both statistically and educationally significant. As the figure makes clear, the funding gap began to emerge in 2008-09, at the onset of the Great Recession budget cuts. Even when federal funding is included, high-poverty districts in Texas receive 5.5% less funding than otherwise similar low-poverty districts. This funding gap will likely have tangible consequences if left unaddressed for the lifespan of a student's K-12 experience (Jackson et al., 2014). The trends in Texas are similar to all other states (right side of Figure 1), except that the gap in state and local funding did not expand by as much. Nationally, the income-based funding gap went from $117 to $834 per student, an increase of $662, whereas the funding gap in Texas increased from $310 to $1,352, representing an increase of $1,041.

Interactions between the poverty rate and other state-by-year fixed effects for school year 2012-13 (not shown in Table 2) show how the relationship between poverty rates and funding levels (i.e., the funding progressiveness) changed in other states, *relative to Texas*. This interaction term is positive for 43 states, implying that the Texas school finance system experienced a greater decline in progressiveness than did 43 other states following the Great Recession (from 2007-08 to 2012-13), and the difference is statistically significant for eight of those states. Conversely, only six states experienced a greater decline in progressiveness than did Texas and only one state, New Mexico, declined by a statistically significant amount more than Texas (Hawaii is not included; full results are available from the author upon request). Although the funding gap increased in Texas by more than in most other states, across the country, high-poverty districts, on average, experienced a disproportionate share of the funding cuts associated with the Great Recession.

Results for total per-pupil funding in Texas (local, state, and federal revenues), shown in column 2 of Table 2, are similar to the results for state and local funding, except that prior to the recession, otherwise similar districts in Texas received about $13 *more* in funding for each additional percentage point of students in poverty (row 1 of column 2). As shown in columns 3-8 of Table 2, these declines in funding for high-poverty districts, relative to low-poverty districts, were accompanied by relative decreases in spending, average salaries, and staff per student.

Whether the Great Recession spending cuts caused the funding gap depends on two underlying assumptions common to a difference-in-difference framework (Bertrand et al. 2004). The first is that the treatment and comparison groups followed similar trends prior to treatment. As Figure 1 shows, during the three years leading up to the recession, from 2005-06 to 2007-08, high- and low-poverty districts followed similar trends in state and local funding (and in other outcomes not shown, available upon request). The second assumption is that the treatment was "unanticipated" or exogenous and no other factors that differentially impacted treatment or "control" groups (high- and low-poverty districts) at the same time as the treatment took place (Angrist and Pischke 2009). Policy scans show that no policy changes were made to the finance system during this period other than the recession-induced budget cuts. Descriptive statistics show that the proportion of special education students and students classified as ELL did not change significantly in either high- or low-poverty districts.[7] In short, evidence that these two assumptions are tenable suggests that the trends in the outcomes measures would have continued to be parallel if not for the Great Recession and therefore changes in trends can be attributed to the recessionary funding cuts.

Similar models estimated for achievement show the state also experienced an increase from 2008-09 to 2012-13 in the income-based achievement gap on standardized statewide assessments.[8] In 2008-09, each 1% increase in poverty rate was associated with a decline of between 0.049 and 0.054 standard deviations (SD) in English Language Arts and between 0.044 and 0.062 SD in Math. These coefficients equate to roughly a 1 SD achievement gap between districts with 10% and 30% poverty rate. By 2012-13, the gap for English Language Arts had increased by between 0.005 and 0.018 SD for each 1% increase in poverty rate. The changes in the achievement gap from 2008-09 to 2012-13 in Math are less consistent. The gap for grade 4 increased by 0.006, though that difference is not statistically significant. In grades 7 and 8, the gap decreased by 0.008 and 0.009 SD (although those differences are only significant at $p<0.1$).

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[7] Other changes that may have taken place, such as increases in average poverty rates or decreases in property values are considered part of the treatment effects.

[8] Based on the Texas Assessment of Knowledge and Skills and the State of Texas Assessments of Academic Readiness, taken from Reardon et al., 2016). Nationally normed data for 2007-08 are not available.

Changes in achievement gaps over time likely increased for a multitude of reasons, many of which could be related to changes in socioeconomic conditions associated with the Great Recession. For example, lower-income families experienced greater increases in unemployment compared to higher-income families (Hoynes et al. 2012). Similarly, states may have reduced the availability of social services available in high-poverty neighborhoods, whereas families in lower-poverty neighborhoods rely less on these services. The data do not permit establishing a causal inference associated with the recession or with funding cuts. However, these results confirm that income-based achievement gaps increased in Texas during and immediately following the Great Recession. This finding is important given that high-poverty districts also saw relative decreases in the level of resources available in their neighborhood schools.

Exploring Mechanisms for Funding Changes

The second research question explores changes in revenues by funding source and changes in local property values and taxes. These results are shown in Figure 2 and in Table 3. Figure 2 shows that the funding gap increased in Texas primarily because of differences in increases in local funding between high- and low-poverty districts. Texas actually protected state funding for high-poverty districts, reducing per-pupil state funding by only $670, compared to $1,052 in wealthier, low-poverty districts. However, the state did not take strong enough measures to prevent expansion of the funding gap given the large increases in local tax revenues for low-poverty Texas districts. Low-poverty districts experienced a $2,000 increase in local per-pupil funding, while high-poverty districts experienced a $576 increase. In all other states, local tax revenues also increased by more in low-poverty districts, but the differences were much smaller. Conversely, on average nationally, high-poverty districts experienced greater declines in state funding compared to otherwise similar low-poverty districts.

In summary, the income-based funding gap, as measured by state and local tax revenues allocated to high- and otherwise similar low-poverty districts increased nationally following the Great Recession. On average nationally, the gap expanded as a result of state funding cuts concentrated in high-poverty districts. Conversely, in Texas, the state took some measures to protect high-poverty districts from funding cuts, but large increases in local tax revenues caused the funding gap to increase by more in Texas than in most other states.

Table 3 provides explanation for why this may have occurred. First, Panel A shows that in 2008, 12.0% of low-poverty districts were assessing the statutory maximum M&O tax rate of $1.17, whereas 16.8% of otherwise similar high-poverty districts had reached the maximum M&O rate, a difference of 4.8 percentage points (differences are shown in Panel E). By 2013, 22% of low-poverty districts and 32% of high-poverty districts were assessing the maximum local tax rates.[9] Similarly, Panel B shows that high-poverty districts increased average local tax rates at a faster rate than low-poverty districts. High-poverty districts increased average M&O tax rates by $0.024 (from $1.056 in 2008 to $1.080 in 2013), while low-poverty, wealthier districts increased local tax rates by $0.015 (the difference in these increases of 0.009 is not statistically significant).

Recall that the state does not equalize tax bases for I&S taxes (used to repay bonds) to the same extent as M&O taxes. Perhaps not surprisingly then, low-poverty districts increased I&S tax rates at a faster rate (and to a higher level) than high-poverty districts. As shown in the final column of Panel C, on average, low-poverty districts increased I&S taxes by $0.054, whereas high-poverty districts increased I&S taxes by $0.015. Finally, low-poverty districts experienced

[9] The outcomes shown in Table 3 are based on regressions that include the covariates listed in equation 1. As with other outcomes, I also ran models that pool years and interact year fixed effects with poverty rate variables, similar to a traditional difference-in-difference framework. These results are consistent with those presented here and available from the author upon request.

slower rates of growth in per-pupil property value over this same time period (Panel D).[10]

Altogether, the results shown in Table 3 suggest that while high-poverty districts increased their local tax rates more than wealthier districts, the amount of funding generated from these taxes was limited by their relatively slower property value growth. At the same time, low-poverty, wealthier districts successfully compensated for decreases in state funding by increasing their I&S tax rates (which are not subject to recapture and are not equalized to the same extent as M&O taxes) and by experiencing significant growth in local property values.

Extensions and Sensitivity Analyses

The findings described above are consistent across a number of specification checks. I test the preferred model shown in column 1 of Table 2 for just 2012-13 school year. When I omit controls for the percent of students in SPED and classified as ELL, the coefficient for poverty rate for Texas declines, but does not change significantly. The coefficient on district poverty increases when I include 23 outlier districts (8 of which are in Texas). Results are also consistent when I replace the census poverty rate variable with the percent of students eligible for FRL or the percentile of poverty rate, rather than the percent.

I also run five separate models on Texas districts only. I first run a model identical to the preferred model (for just 2012-13), this time only for Texas. I then replace control variables with Texas-specific covariates provided by TEA that correspond to specific student weights in the Texas funding formula.[11] In both models, the coefficient for district poverty is roughly double

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[10] Although not shown, enrollment rates were relatively constant over the time period, on average, for both high- and low-poverty districts.

[11] The variables include the percent of students in career and technical education, in high, middle, and low cost special education categories, in English as a Second Language programs, in Bilingual programs, and the percent deemed “at risk.” Correlations among these variables are all below 0.40. Based on cost studies of SPED categories (e.g., Duncombe & Yinger, 2008) and the student weights in the Texas school finance system, low-cost SPED categories include: learning disability, intellectual disability, and emotional disturbance; middle-cost SPED categories include: orthopedic impairment, other health impairment, auditory impairment, visual impairment, speech impairment, and non-categorical early childhood; and high-cost categories are: deaf-blindness, autism, and traumatic

the size from the preferred model and the coefficient for the cost of labor index switches direction. That is, other factors held constant, Texas actually allocates less funding to higher cost districts, which further disadvantages high-poverty districts (given the substantial increase in the poverty coefficient for these Texas-only models). In the final three models, I exchange the measure of district need – the student poverty rate – with district property values per student, district property values per weighted student, and district property values per weighted student per percentage of M&O property tax. When the model is run on Texas districts only, the funding gap is larger than in the preferred model $2,829 (21%). Funding gaps based on district property values per student, district property values per weighted student, and district property values per weighted student per percentage of M&O property tax are $5,210, $5,482, and $5,284 (roughly a 60% gap). In short, regardless of the model specification or the measure of student need, by the end of the Great Recession, there was a substantial funding gap for high-need districts, after taking into account local cost factors.

Discussion

This study finds that the Great Recession inequitably impacted higher-need districts nationally, and that these disparate impacts were greater in Texas than in most other states across the country. Like most states, the Texas legislature faced a substantial budget deficit and elected to cut funding for public education, using federal dollars to fill gaps in 2009-10 and reducing funding by over $4 billion the following two years. Although legislatures reached a compromise between cutting funding evenly for all districts and protecting high-poverty districts, lack of subsidies for facilities funding and various hold harmless agreements embedded in the Texas

brain injury. The correlations between the federally reported percent of students with IEPs in Texas in 2012-13 (from the Common Core of Data) and the percent of students with low-, middle- and high-cost special education categories (from TEA) are 0.187, 0.523, and 0.790, respectively.

school finance system caused the highest-need districts to be inequitably impacted.

The study uncovers some of the specific mechanisms that contributed to the growing funding gaps in Texas over time. While high-poverty districts increased their tax rates at a faster rate than low-poverty districts, their relative decline in property values, coupled with the decreasing tax base equalization provided by the state, limited the benefits of these tax rate increases. At the same time, low-poverty districts were able to raise local revenues at a faster rate than high-poverty districts by issuing bonds (through I&S tax increases), which are not subject to recapture and redistribution, and for which the state does not equalize tax bases for high-poverty districts. One possible contributing factor to these trends is greater use of the "penny-swap" for high-poverty districts, in which I&S taxes are moved to M&O taxes. Penny swaps increase total tax revenue (since M&O tax revenues are more heavily subsidized by the state than I&S taxes) without increasing households' property tax payment. Finally, federal stimulus funding was not distributed progressively enough to prevent disadvantaged students from bearing a disproportionate impact of state funding cuts.

One of the key takeaways from this study is that high-poverty districts in Texas levy higher local taxes than otherwise similar low-poverty districts, but receive less state and local funding, and these gaps expanded following the Great Recession. Thus, a challenge facing Texas policymakers is to reform the school finance system such that high-poverty districts receive at least as much funding as otherwise similar low-poverty districts, particularly when high-poverty districts are levying the highest possible tax rate. To estimate the cost of this policy and show which regions in Texas would benefit, I simulate a budget policy that equalizes state and local funding across the poverty distribution. I do this by estimating the predicted state and local revenues at each point in the poverty distribution from 0% to 40%, in 2.5% increments for the

2012-13 school year. The estimated per-pupil funding for districts with poverty rate of 2.5% is $13,247, whereas otherwise similar districts with 30% of students in poverty receive $10,945 and districts with a 40% poverty rate receive $10,914. Thus, for districts with between 30% and 32.5% poverty rates, I add $2,302 to calculate the simulated per-pupil funding and $2,333 for districts with poverty rate between 40% and 42.5%. After imputing the simulated per-pupil funding variable for each range of poverty rates, I re-estimate the relationship between poverty rates and funding level. The results show that that otherwise similar districts receive the same level of funding (about $13,247), regardless of poverty rate.

The results of this policy simulation are shown in Table 4. Each of the 20 educational service regions in Texas would experience increases in their average per-pupil funding across districts, but some would benefit more than others. On average, districts in Fort Worth would receive an additional $1,523 per student, whereas the 12 districts in El Paso would receive $2,258 in additional funding per pupil on average, the most of any other region. As shown in Table 4, this policy would cost the state $9.1 billion, representing a 16.7% increasing in state and local funding. This simulation highlights which districts and regions are underfunded in Texas given their local cost factors and sheds light on the difficult choices facing the Texas legislature.

Conclusion

Although the Texas Supreme Court's recent decision declared the finance system constitutional, the court's opinion made clear that substantial reforms are needed to fix the outdated and "byzantine" system. This study shows that in addition to distributing state and local funding inequitably, the funding system is not recession-proof. The combination of the foundation formula, guaranteed tax base, and Chapter 41 recapture did not successfully protect high-poverty districts from experiencing a disproportionate impact of the recessionary budget cuts, despite their relatively greater effort to increase local tax rates. As the state considers reforming its school finance system, it may benefit from considering how the highest-need districts will be protected from the next major state budget cut.

The failure of the Texas school finance system to protect high-need districts is not specific to the state. The analyses described here found that across the country, state funding cuts disproportionately harmed high-poverty districts. Many states are currently conducting their own assessments of the impact of the recession on their school finance system and considering strategies for reform (Bunting, Kueneman, Louttit, Park and Parker 2014). Texas could therefore serve as a leader in designing a new school finance system designed to both provide an equitable level of funding and withstand the negative impacts of future economic recessions.

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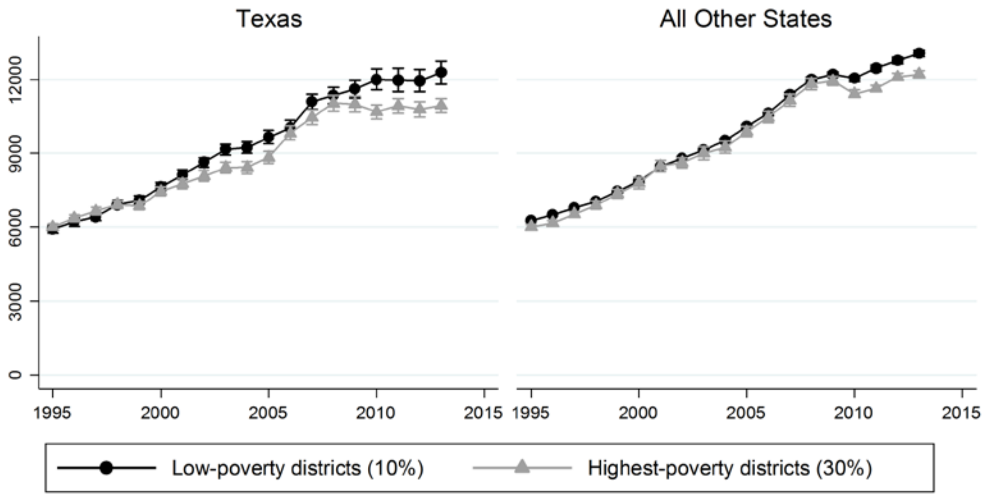
FIGURE 1

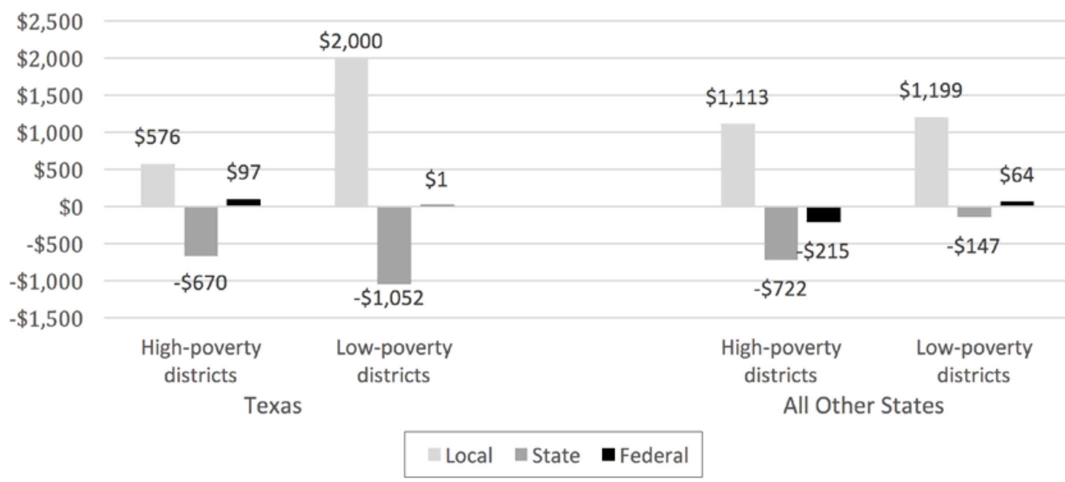
Adjusted state and local revenue per pupil in Texas and all other states, for low-poverty school districts (10% poverty rate) and high poverty school districts (30% poverty rate), 1994-95 to 2012-13



Note. Revenue per pupil is based on predicted values from a regression that controls for a geographical cost of wage index (Taylor, 2005), districts size, population density, and the proportion of students enrolled in special education and with limited English proficiency. The model also includes state fixed effects so that district funding rates are compared relative to other districts in the same state.

FIGURE 2

Changes in local, state, and federal per-pupil funding from 2007-08 to 2012-13, adjusting for local district cost factors, Texas and all other states



Note. Funding rates are regression-based predicted values described in the text. This figure shows that local per-pupil funding in Texas increased by $576 for high-poverty districts and by $2,000 for low-poverty districts. In total, high-poverty districts in Texas experienced a $4 per-pupil increase in total funding from 2007-08 to 2012-13, whereas low-poverty districts received a $948 increase (a $944 difference). In all other states, high-poverty districts received a $176 increase and low-poverty districts received a $1,117 increase. The funding gap for just state and local revenues increased by $1,041 in Texas and $662 in all other states (as shown in Figure 1).

TABLE 1

Average characteristics for school districts with equal to or below the 25th percentile of poverty rate and equal to or above the 75th percentile (within state and year), Texas and the United States, 2007-08 and 2012-13

	Texas school districts				All other US school districts[a]			
	2007-08		2012-13		2007-08		2012-13	
	≤ 25th	≥ 75th	≤ 25th	≥ 75th	≤ 25th	≥ 75th	≤ 25th	≥ 75th
Average district characteristics and student demographics / outcomes								
% Poverty	9.4%	32.9%	12.5%	35.9%	7.2%	24.9%	10.8%	29.8%
% FRL	32.7%	56.7%	39.3%	74.3%	22.3%	56.6%	30.9%	62.5%
% ELL	2.9%	7.4%	4.9%	12.6%	2.6%	6.4%	2.8%	6.3%
% SPED	10.7%	11.5%	8.8%	9.5%	13.0%	15.1%	12.8%	15.0%
% URM	24.9%	63.9%	32.5%	66.8%	12.8%	32.3%	18.8%	36.3%
Grade 3 ELA	0.314	-0.761	0.112	-1.022	0.590	-0.418	0.549	-0.542
Grade 3 Math	0.330	-0.583	0.316	-0.594	0.529	-0.388	0.470	-0.503
Fresh. grad. rate	85.1%	74.4%	n/a	n/a	87.2%	76.6%	n/a	n/a
Dist. Enroll.	5,654	4,536	6,624	6,054	4,651	3,252	4,864	3,603
Cost of Wage	1.32	1.12	1.45	1.30	1.34	1.21	1.43	1.33
Num. of districts	248	265	247	262	3004	3074	3164	2924
School inputs (unadjusted outcome measures)								
Total PPR	11,343	12,142	12,420	12,206	12,653	13,293	13,617	14,027
St./local PPR	10,702	10,677	11,719	10,636	12,156	11,833	12,940	12,458
Per-pup. Exp.	8,792	10,195	9,230	10,041	10,463	11,336	11,448	12,003
Avg. salaries	39,095	36,804	42,362	39,963	50,466	46,069	52,398	49,576
Staff per 100 students								
All Staff	12.8	14.6	13.0	14.2	14.9	17.7	14.3	16.3
Teachers	6.8	7.6	7.0	7.5	8.0	8.8	7.8	8.1
Guid. Coun.	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3
Sup. Staff	0.5	0.6	0.6	0.7	0.4	0.5	0.4	0.6

[a] all districts in the United States except for Texas. In order to match the analytic sample, I also omit Hawaii, the District of Columbia, charter districts, and outlier districts that receive extremely high per-pupil revenues. The figures are generally similar when I include these districts (available upon request).

Note. FRL stands for free and reduced price meals; ELL stands for English language learner, SPED stands for special education, and URM stands for underrepresented minority. Grade 3 ELA and Math refer to the district average grade 3 standardized exam scores, adjusted by NAEP to allow for national comparisons (Reardon et al., 2016)

TABLE 2

Regression coefficients predicting various school inputs by poverty rate for Texas school districts, adjusted for other cost factors, 2007-08 to 2012-13

	Adj. state/ local PPR	Adj. total PPR	Adj. total PPE	Avg. Salaries	Staff per 100 pupils			
					All Staff	Teachers	Gd. Coun.	Sup. Staff
Poverty rate	-8.756 (17.212)	12.964 (17.837)	44.207*** (12.631)	62.482 (38.989)	0.091*** (0.013)	0.019** (0.007)	-0.001 (0.001)	0.004+ (0.002)
Poverty rate x 2012-13	-57.179* (23.280)	-47.808* (24.124)	-25.885 (17.083)	-68.964 (52.759)	-0.044* (0.017)	-0.023* (0.010)	0.000 (0.001)	0.000 (0.003)
R-squared	0.563	0.545	0.623	0.77	0.651	0.576	0.437	0.394

Note. Each column is a separate regression. The base year is 2007-08, so coefficients for the interaction between poverty rate and school year 2012-13 show how the relationship between poverty rate and resource levels changed in 2012-13 relative to 2007-08. Covariates not shown include year dummies for 2008-09 through 2011-12 (and their interaction with poverty rate in those years), poverty rate squared and year interactions (all of which are generally not significant or significant but several orders of magnitude smaller than the main effect of poverty), district size, population sparsity, the percent of students classified as English language learners and in special education, and an educational geographic cost of wage index. PPR stands for per-pupil revenue and PPE stands for per-pupil expenditures. + p< .10, * p<.05, ** p<.01, *** p<.001.

TABLE 3

Determinants of local tax revenues for high- and low-poverty districts in Texas, 2007-08 to 2012-13

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Diff. 2008 to 2013
Panel A: Districts with the highest possible local maintenance and operations (M & O) property tax rate							
Low poverty	12.0%	14.2%	13.6%	20.7%	18.7%	21.6%	0.096**
	(0.018)	(0.022)	(0.023)	(0.030)	(0.027)	(0.029)	(0.034)
High poverty	16.8%	20.8%	25.7%	26.5%	28.1%	32.3%	0.155***
	(0.021)	(0.021)	(0.021)	(0.020)	(0.022)	(0.021)	(0.030)
Panel B: Local M & O tax rate							
Low poverty	1.050	1.054	1.053	1.065	1.062	1.065	0.015*
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
High poverty	1.056	1.064	1.070	1.072	1.076	1.080	0.024***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Panel C: Local interest and sinking (I & S) tax rate							
Low poverty	0.174	0.184	0.199	0.215	0.207	0.228	0.054***
	(0.006)	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.011)
High poverty	0.148	0.153	0.159	0.160	0.165	0.162	0.015+
	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.008)
Panel D: Local property value per pupil							
Low poverty	413,888	489,346	533,268	671,796	659,922	684,936	271,047***
	(17822)	(25859)	(25503)	(39964)	(37955)	(37952)	(41928)
High poverty	246,815	302,749	311,129	409,542	409,205	390,788	143,973***
	(16418)	(23683)	(20340)	(24974)	(22643)	(24095)	(29156)
Panel E: Differences between low-poverty and high-poverty districts							
Highest M&O rate	0.048+	0.065*	0.121***	0.058	0.094**	0.106**	0.058
	(0.027)	(0.030)	(0.031)	(0.036)	(0.034)	(0.036)	(0.046)
Avg. M&O rate	0.006	0.010+	0.017**	0.008	0.014*	0.015*	0.009
	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.008)
Avg. I&S rate	-0.027**	-0.031***	-0.040***	-0.055***	-0.043***	-0.066***	-0.039**
	(0.008)	(0.009)	(0.010)	(0.011)	(0.010)	(0.011)	(0.013)
Prop. value per pupil	-167,073***	-186,597***	-222,140**	-262,254**	-250,717**	-294,147**	-127,074*
	(24232)	(35065)	(32621)	(47125)	(44196)	(44954)	(51069)

Note. Maintenance and operations taxes ("M & O") generate local tax revenues that pay for the basic operations of school districts (e.g., salaries, curricular materials, etc.). M&O tax revenues for high-poverty districts are largely subsidized through state aid. Districts repay bonds by raising tax rates through Interest and sinking ("I & S") taxes. These taxes are not subject to recapture for equalization purposes and the state does not necessarily provide an equal tax base for high-poverty districts (see text for more detail). + p< .10, * p<.05, ** p<.01, *** p<.001.

TABLE 4

Results of a policy simulation that equalizes state and local funding across poverty rates

Region	Num. of districts	State and Local Funding				Avg. enroll.	Total enroll.	Total state & local funding	Total funding added	Funding increase (%)
		Current (unadj)	Current (adjusted)	Sim.	Diff. (adj. - sim.)					
Edinburg	36	$10,012	$10,155	$12,392	$2,133	11,011	396,407	$4,025,504,130	$845,382,042	21.0%
Corpus Christi	39	$11,489	$10,399	$12,458	$2,052	2,666	103,956	$1,081,076,715	$213,325,564	19.7%
Victoria	38	$13,800	$10,975	$12,887	$1,911	1,407	53,459	$586,728,674	$102,151,997	17.4%
Houston	50	$9,498	$11,073	$12,805	$1,729	21,416	1,070,803	$11,857,282,169	$1,851,436,484	15.6%
Beaumont	32	$10,253	$11,201	$13,069	$1,869	2,531	80,977	$907,036,108	$151,374,180	16.7%
Huntsville	56	$10,714	$11,152	$13,187	$2,031	3,135	175,570	$1,958,033,558	$356,614,364	18.2%
Kilgore	96	$9,652	$10,638	$12,683	$2,042	1,751	168,048	$1,787,708,572	$343,124,003	19.2%
Mt. Pleasant	47	$9,357	$11,130	$13,237	$2,101	1,209	56,824	$632,467,554	$119,385,425	18.9%
Wichita Falls	37	$11,889	$12,045	$13,915	$1,874	1,036	38,330	$461,675,477	$71,849,394	15.6%
Richardson	80	$9,542	$11,267	$12,822	$1,554	9,237	738,982	$8,325,970,526	$1,148,563,660	13.8%
Fort Worth	76	$10,924	$11,294	$12,818	$1,523	7,194	546,734	$6,174,782,067	$832,788,179	13.5%
Waco	77	$10,379	$11,343	$13,303	$1,962	2,011	154,811	$1,755,953,394	$303,778,555	17.3%
Austin	55	$10,497	$11,252	$12,795	$1,543	6,716	369,404	$4,156,715,577	$570,105,703	13.7%
Abilene	42	$12,661	$11,522	$13,524	$2,005	1,076	45,201	$520,808,505	$90,627,898	17.4%
San Angelo	42	$12,878	$11,778	$13,784	$1,998	1,123	47,185	$555,747,723	$94,254,894	17.0%
Amarillo	59	$12,871	$12,254	$13,928	$1,676	1,456	85,906	$1,052,698,568	$143,992,906	13.7%
Lubbock	52	$14,074	$11,328	$13,393	$2,055	1,559	81,087	$918,535,868	$166,600,646	18.1%
Midland	27	$19,497	$11,346	$12,995	$1,628	2,993	80,824	$917,027,089	$131,578,935	14.3%
El Paso	12	$9,892	$10,800	$13,117	$2,258	14,871	178,447	$1,927,168,134	$402,953,553	20.9%
San Antonio	51	$9,961	$10,507	$12,476	$1,958	8,058	410,975	$4,318,035,400	$804,616,058	18.6%
Total	1,004	$11,185	$11,185	$13,059	$1,867	4,864	4,883,930	$54,624,427,286	$9,117,825,012	16.7%

Note. Sim. refers to the state and local funding under a policy simulation in which all districts in Texas would receive funding rates equal to the lowest-poverty districts, after adjusting for local cost differences.