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Compounded Inequities: Assessing School Finance Equity for Low-Income English Language Learners

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Abstract

School districts face different costs to produce the same level of educational opportunity because of differences in student population, geographical costs of living, and district size. However, in many states, the school finance system fails to take these factors into account when distributing funds to school districts. Most prior analyses of state school finance systems focus on the relationship between district funding and the percent of low-income students in that district or the percent of emergent bilinguals, who are typically classified as English language learners (ELLs).

We present the first longitudinal descriptive evidence of the extent to which state school finance systems compound inequities for districts serving high concentrations of both low-income students and emergent bilinguals. We assess the extent to which high-ELL high-poverty districts are underfunded relative to otherwise similar districts in the same state and how these trends have changed leading up to and following the recession-era spending cuts.

We find that prior to the recession, high-ELL districts received greater funding levels than otherwise similar low-ELL districts in the same state. However, recessionary spending cuts disproportionately impacted funding for emergent bilinguals. The remaining resource advantages for high-ELL districts are concentrated in low-poverty districts. These findings are consistent across measures of funding, expenditures and staffing ratios. Finally, our cross-state analyses identify wide differences in the extent to which states allocate resources equitably across districts. We find that larger student weights for ELL and FRL students may increase funding for those students, but there is a relatively weak relationship between the size of funding weights for special populations and the degree of funding equity for those students.

Compounded Inequities:
Assessing School Finance Equity for Low-Income English Language Learners

The United States has one of the only education systems among advanced nations that provides less funding for schools serving higher-need students (Organization for Economic Development and Cooperation [OECD], 2016; Porter, 2013).[1] In contrast to all other developed countries, educational governance in the U.S. is controlled primarily at the state and local level, with the federal government contributing only about 10% of total funding. The decentralized structure – with heavy reliance on local property tax revenues for school funding – leads to resource disparities as school funding is a function of local property values and family income. In response to court mandates and legislative reforms over the past four decades, states target aid to high-poverty districts; however, state aid is often insufficient to alleviate the disparities that result from reliance on local property taxation. State legislatures maintain authority over both the level and distribution of funds across school districts and the degree of funding disparity varies substantially across states, with some states providing more equitable resource allocation than others. However, on average nationally, the highest-poverty and often the highest-need school districts receive less funding and have fewer resources than districts serving more privileged students populations (Baker, Farrie, Johnson, Luhm & Sciarra, 2017).

School districts face different costs to produce the same level of educational opportunity because of differences in student population, geographical costs of living, and district size (Odden & Picus, 2014). For example, research shows that districts face higher costs to educate low-income and emergent bilingual students (Duncombe & Yinger, 2008; Parrish, 1994). Students in poverty may not have access to the same level of resources at home as do higher

[1] Among countries in the OECD, only the United States, Turkey, and Israel provide more teachers per student in schools serving more advantaged students (OECD, 2016; see also Porter, 2016).

income students, and schools often target special services such as after school tutoring or health related interventions to address these differences. For emergent bilingual students, additional costs pay for multilingual curricular materials, teacher professional development, and bilingual aides to help educators draw on the assets such students bring to schools including linguistic capital and cultural diversity (Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003; Jimenez-Castellanos & Topper, 2012). School districts classify emergent bilinguals as English language learners (ELLs). Students in poverty are identified based on their eligibility for free or reduced price meals (FRL), a federal program targeted to students at or below 185% of the federal poverty line. In many states, districts receive extra funds to cover the additional costs of serving ELLs and students eligible for FRL. In summary, schools serving greater proportions of emergent bilinguals or students in poverty require additional funding to provide equitable learning opportunities, yet state school finance systems often fail to recognize these differences and fund districts accordingly.

Most prior analyses of state school finance systems focus on the relationship between district funding and the percent of low-income students in that district (Chingos & Blagg, 2017; Baker et al., 2017) or the percent of ELLs (Knight & DeMatthews, 2017; Rolle, & Jimenez-Castellanos, 2014). More recent work focuses on the impact of the Great Recession on school resources (Baker, 2014; Knight, Forthcoming). Recessionary spending cuts disproportionately reduced resources targeted to historically underserved students both across districts and within districts across schools. In this chapter, we present the first longitudinal descriptive evidence of the extent to which state school finance systems compound inequities for districts serving high concentrations of both low-income students and emergent bilinguals. We assess the extent to which high-ELL high-FRL districts are underfunded relative to otherwise similar districts in the

same state and how these trends have changed leading up to and following the recession-era spending cuts. We focus on the following three research questions:

1. To what extent do districts receive additional funding to serve ELL students and how has that relationship changed since the Great Recession?
2. How does the proportion of students in poverty moderate the relationship between funding and the percent of ELLs in a district?
3. How do states differ in their provision of equitable funding for higher-need districts and what role do state funding mechanisms play in determining these differences?

We find that prior to the Great Recession funding cuts (2007-08), high-ELL districts received approximately 12% more state and local funding than otherwise similar low-ELL districts. However, by 2012-13, following substantial budget cuts in every state, the resource advantage in high-ELL districts decreased to 8%. In other words, recessionary spending cuts disproportionately impacted funding for emergent bilinguals. We also find that the remaining resource advantages for high-ELL districts are concentrated in low-poverty districts. Among districts serving lower-poverty student populations, high-ELL districts receive an additional 11% more funding over otherwise similar low-ELL districts. In contrast, among districts serving higher-poverty student populations, high-ELL districts receive an additional 7% more funding over otherwise similar low-ELL districts. These differences in funding result in real differences in staffing resources. We find that during the recessionary spending cuts, the number of students per teacher, counselor, and support staff all increased in high-ELL districts. Differences in resource levels have real consequences for students. Recent research shows, for example, that a 10% increase in funding for all 12 years of student K-12 school experiences increases the likelihood of high school graduation by 11.5% and increases adult income by 12.3% (Johnson, Jackson, & Persico, 2015). Finally, our cross-state analyses identify wide differences in the extent to which states allocate resources equitably across districts. We find that larger student

weights for ELL and FRL students may increase funding for those students, but there is a relatively weak relationship between the size of funding weights for special populations and the degree of funding equity for those students.

The balance of the chapter proceeds with a review of past studies focusing on (a) the impact of school funding for low-income students and emergent bilinguals; and (b) the degree to which higher-need districts receive more funding. Subsequent sections review the data and methods used in our analyses, findings, and recommendations for policy.

Review of Relevant Literature

Two areas of research are pertinent to the analysis described in this chapter. First, we synthesize research demonstrating the importance of school funding for higher-need students. Second, we review studies documenting inequitable funding for low-income students and emergent bilinguals.

The Impact of School Funding

Scholars have debated for decades whether increasing funding for schools improves outcomes (see Coleman, 1966; Hanushek, 1986, 1989; and Baker, 2012). Most of the prior studies are based on regression analysis using large-scale datasets. These studies allow researchers to compare short-term outcomes in school districts that have *otherwise similar* characteristics, but receive varying levels of funding.[2] If districts with more funding outperform otherwise similar districts with less funding, then one might conclude that providing extra resources improves outcomes. Many studies have identified a positive correlation between funding and outcomes through regression analyses; however, a roughly equal number (depending

[2] An educational production function refers to the broad set of analyses that estimate the amount of "output" produced in schools (i.e., test scores, graduation rates, or some other student outcome), based on a set of "inputs" such as funding, salaries, or teacher-student ratios.

on how those studies are counted, see Greenwald, Hedges, and Laine, (1996) have found no systematic relationship. Because funding is not randomly distributed to school districts, determining the causal impact of school funding on outcomes is not possible through simple regression analysis of large-scale datasets. Moreover, because additional school resources may provide benefits to students that accrue over time, examining only short-term outcomes such as test scores may underestimate the true impact of school funding.

In recent years however, a new approach to measuring the impact of school funding on student outcomes emerged. Since the 1970s, school districts in almost every state have brought legal challenges alleging that their state school finance system does not provide an equitable or adequate level of school resources that meets state constitutionals mandates. Court decisions have often ruled in favor of plaintiffs, leading to immediate, long-lasting increases in school funding in those states. Researchers have used these "exogenous shocks" in school funding to carefully examine how outcomes changed over time for students living in those states, compared to other states that did not undergo a major school finance reform (Candelaria & Shores, 2017; Jackson, Johnson & Perscico, 2016; Lafortune, Schanzenbach, & Rothstein, 2017). The findings from these studies are unequivocal: Greater funding in higher-need districts that is sustained over time improves students' test scores, graduation rates, and labor market earnings later in life.

The Distribution of School Funding

A number of studies and policy reports document inequitable funding across districts serving high and low-poverty student populations (Adamson & Darling-Hammond, 2012; Goldhaber & Callahan, 2001; Rolle & Liu, 2007; Knight, Forthcoming). A yearly report from the Education Law Center identifies states that have the most inequitable funding systems, based on several measures including the relative funding between high- and low-poverty districts (Baker

et al., 2017). The Education Trust also publishes reports documenting funding gaps between wealthy and poor districts nationally and between high- and low-minority districts (Ushomirsky & Williams, 2015). In both reports, Illinois, Nevada, New York, Pennsylvania, and Texas consistently rank among the bottom in measures of funding equity based on poverty rates. New Jersey, Minnesota, and Ohio are among the states most commonly identified as having equitable funding systems based on measures of student poverty.

Little prior research examines funding for emergent bilinguals (Gándara, Rumberger, Maxwell-Jolly & Callahan, 2003). One study found that of the eight states with at least 10 percent of its student population classified as ELLs, five allocated less funding in high-ELL districts compared to low-ELL districts, two states spent approximately the same, and only Alaska allocated greater funding levels to districts serving more ELL students (Arroyo, 2008). Two other studies focused just on Texas found no significant relationship between state and local funding and the percent of students receiving bilingual education in Texas school districts (Rolle & Jimenez-Castellanos, 2012; Rolle, Torres & Eason, 2010). Finally, in prior work, we found that during the 2007-08 school year, districts in the 95th percentile of percent ELL in their state received approximately 10% more funding on average nationally, compared to those in the 10th percentile, but this funding advantaged disappeared following the Great Recession funding cuts (Knight & DeMatthews, 2017).

Prior research on funding for ELLs does not consider the diversity within ELL student populations (Gándara & Rumberger, 2007; 2008; Rolle & Jimenez-Castellanos, 2014). Emergent bilinguals have a wide range of racial/ethnic identities, socioeconomic status, learning needs, and academic assets. In the most obvious case, districts serving high populations of ELLs may differ in the extent to which those students also come from high-poverty backgrounds. This chapter

highlights the often-overlooked question of how funding for bilingual education differs in high- and low-poverty districts. In summary, despite the large number of studies demonstrating the negative relationship between district poverty rate and funding levels, fewer studies examine the funding equity for high-ELL districts and no study of which we are aware has considered how funding disparities may compound for districts serving high proportions of both ELL and low-income students.

Policy Context

High-Poverty High-ELL Districts

Table 1 demonstrates that districts serving high concentrations of ELL students differ considerably depending on district poverty rate. The table is limited to all school districts in the 25 states with the highest percent of ELL students. The first two columns compare low-poverty districts that are low-ELL (Column 1) and high-ELL (Column 2). In this table "low" and "high" indicate the bottom and top quartiles within each state. Most students attending low-ELL low-FRL districts live in suburban and rural neighborhoods and 88% are White. The majority of students in low-ELL high-FRL districts live in rural neighborhoods. Among high-ELL districts, there is a stark contrast in the percent of Asian and Hispanic students, depending on the poverty rate. As shown in Column 2, 14% of students identify as Asian in high-ELL districts that are low-poverty, compared to only 2% in high-ELL districts that are high-poverty. Hispanic students make up 28% of the student population in high-ELL low-poverty districts, and 62% in high-ELL high-poverty districts.

The fourth panel of Table 1 shows achievement scores based on standardized exams. These exam scores are nationally referenced and standardized so that the overall mean is 0 and

negative values imply that the district is below the national average (Reardon et al., 2016). While low-ELL low-FRL districts are the highest achieving of the four groups, the ELL achievement gap is greater among districts serving low-income students, compared to districts serving higher-income students. The bottom panel shows funding and spending rates. These figures show that, consistent with prior literature, high-poverty districts generally receive less state and local funding than low-poverty districts. Similarly, high-ELL districts receive less funding and spend less per student than low-ELL districts, but funding gaps vary by district poverty rate. Based on unadjusted comparisons, the funding gap between low- and high-ELL districts is larger for low-poverty districts.

Comparisons in Table 1 do not take into account or adjust for local differences in cost that may be related to student demographics. For example, high-ELL high-FRL districts are more likely to be located in urban areas where the cost of wages is higher and educational dollar does not have as much buying power. Conversely, rural schools with sparse population density face higher costs for student transportation and through diseconomies of scale. The table also does not consider changes over time. In the section below, we describe how we adjust for local differences in cost and examine changes in funding rates over time. We first provide additional background on state funding mechanisms for higher need students.

State Funding for ELL and Low-Income Students

School districts in the U.S. receive funding from local property tax revenues, additional state aid, and directly from the federal government. On average, local and state funding sources account for about 45% of total funding each, while federal funding makes up the other 10%. All states have a school finance formula that determines the amount of aid each district will receive, which is typically based on district cost factors such as size and student population and the

amount of local revenue generated through property taxation. State aid is used to provide additional funding for districts serving households with lower property values, which generate less local tax revenue. The purpose of this state aid is to ensure that all school districts receive an adequate level of funding. However, states vary widely in the extent to which aid is targeted to high-need districts and the mechanisms through which funds are allocated.

A total of 40 states have a specific mechanism within their school finance formula for targeting additional funds to high-ELL districts, whereas 35 states have a provision in their finance formula that increases funding for low-income students. States provide supplementary funding for bilingual education or other programs for ELLs through one of three mechanism: formula funding, categorical funding outside general formula funding, or through direct reimbursement. Funding formula mechanisms include (a) student weights, where a student classified as ELL generates, for example, 10% additional funding; (b) dollar amounts, where an ELL student generates a specific dollar amount of funding; and (c) teacher allocations, in which additional teachers are allocated to districts based on the percent of ELL students (Odden & Picus, 2015). Categorical funding includes special grants that districts receive based on their student population. States use similar funding mechanisms to support low-income students.

Table 2 shows the different ELL and FRL funding mechanisms across states in 2015-16, based on a policy scan that we conducted of the 25 states with the highest percent of ELL students. From the 25 states analyzed, 18 states use formula funding to send additional funds to districts serving greater concentrations of students in poverty and three states allocate funding for low-income students through categorical grants. In contrast, only 13 states use a formula to additionally fund ELL students and four rely on categorical funding. Only two states (Delaware

and Rhode Island) of those analyzed in Table 2 lack any specific funding mechanism for poor students, whereas seven states do not have any funding mechanism for ELL students.

Data Sources and Methods for Adjusting Funding Rates for Local Costs

Analyses presented in this chapter are based on merged datasets that include the Local Education Finance Survey and Common Core of Data, the U.S. Census Bureau Small Area Income & Poverty Estimates, and the Educational Cost of Wage Index (Taylor & Fowler, 2006). Our dataset includes all school districts nationally that educate students in any grades in K-12, and that reported finance and other data to the Department of Education National Center for Education Statistics (NCES), from school years 2007-08 to 2012-13 (about 96 percent of active districts in the U.S.). Districts report total enrollment and the number of students eligible for FRL, classified as ELL, and enrolled in special education. Our merged datasets also include information about the districts' local cost of wage index and population density (based on the NCES classifications of urban, urban fringe, suburban, rural-large town, and rural). In total, the sample includes 12,723 districts in 2012-13, the most recent year of data used. For most of our analyses, we limited to the dataset to the 25 states with the highest overall percent of students classified as ELL, since funding disparities for ELL students in low-ELL states are more difficult to measure and may distort nationally averages. These 25 states educate approximately 91 percent of all ELLs nationally.

We compare funding, spending, and staffing levels across school districts that serve high and low proportions of ELL and FRL students. The goal of these analyses is to determine the extent to which states provide equitable funding and resources for these students. We create measures of funding progressiveness based on regressions that control for local differences in cost (the cost of wage, population density, the percent of students in special education, and

district size). In other words, regressions allow us to compare districts within the same state that have similar cost factors, but differ in their percent of ELL or FRL students. The primary variables of interest are the percent of students classified as ELL and FRL. Our regression analyses weight districts by student enrollment so that larger districts contribute more to the results. We report both regression coefficients (Table 3) and, to clarify the results of these analyses, predicted values for the districts in each state with the highest and lowest percent of ELLs and FRL students (Table 4). We compare resource levels across districts in the same state in the same year by including state and year fixed effects in the regressions. We include in our analytic sample only the 25 states with the highest percent of ELL students because in states that fall in the bottom half of percent ELL, fewer than 6% of students are classified as ELL. However, our results are similar when analyses include all states and when narrowing the sample to just Texas and just California – the two states educating the greatest number of emergent bilingual students (these results are available from the authors upon request).

Findings

Our results show that, consistent which prior studies, high-ELL districts received slightly more funding than otherwise similar low-ELL districts prior to the recession, but that funding advantaged significantly decreased following the Great Recession funding cuts. However, we also find that funding for ELL students varies according to the degree of poverty in the school district. Among high-ELL districts, those serving higher-poverty students receive 27% less funding than those serving lower-poverty districts. Conversely, among lower-poverty districts, high-ELL districts receive 11% more funding than low-ELL districts, whereas among the highest-poverty districts, high-ELL districts receive only 7% more funding than otherwise similar low-ELL districts. These results are consistent when considering staffing and salary

levels as well as overall spending. Finally, we identify significant variation across states. States that allocate additional funds to special populations through formula funding and those that have larger student weights have more equitable finance systems, but this relationship is not statistically significant and there are several examples of states that do not follow these trends. In other words, changes in state funding formulas will not guarantee more equitable finance systems. We present more detailed information on our findings in the two subsections below.

Compounded Inequities of High-Poverty High-ELL Districts

Table 3 shows regression coefficients that estimate the relationship between the percent of ELL and FRL students and three different measures of district resources. Measures of district resource levels include state and local funding per student (Model 1 and 2), per-student spending (Models 3 and 4) and average staff salaries (Models 5 and 6). For each outcome, the first model includes the two variables of interest (percent of ELLs and percent of FRL students), as well as the control variables. Next, we add an interaction term that shows how the relationship between resources and the percent of ELLs changes as the percent of FRL students increases.

Model 1 (Column 1) shows results for Research Question 1, which examines how funding for ELLs changed from 2007-08 to 2012-13. In the base year (2007-08), across otherwise similar districts in the same state, a one percentage point increase in the proportion of ELL students is associated with an increase of $38.77 in per-student funding, or about 0.39%. In other words, in 2007-08, high-ELL districts (those with 35% ELL students, approximately the 95th percentile) received about 12% more state and local funding than otherwise similar low-ELL districts (those with no ELL students). The second row shows a negative relationship between funding and the percent of low-income students for 2007-08. Each percentage point increase in the proportion of FRL students is associated with a decrease of $36.58 in state and

local funding per student. The bottom panel of Table 3 shows how these relationships changed in 2012-13, after states cut education funding following the Great Recession. The coefficient for percent of ELL students, -$1,471, implies that ELL students were disproportionately impacted by the Great Recession funding cuts. Specifically, relative to funding rates in 2007-08, each one percentage point increase in the proportion of ELL students across districts in a state is associated with a $14.71 decrease in per-student funding, relative to 2007-08 levels. The negative coefficient for % FRL (-$1,397) implies that high-poverty districts were also disproportionately impacted by recessionary funding cuts by approximately the same degree as high-ELL districts.

The second model of Table 3 captures our results for Research Question 2 of how funding for ELLs varies by poverty rate. This model adds an interaction between percent of ELL students and the percent of FRL students. The coefficient for the percent of ELL students now represents the relationship between funding and the percent of ELL students for districts with zero low-income students. As shown in Table 3, the coefficient for percent of ELL students changes from $3,877 to $6,281 from Model 1 to Model 2, implying that while the percent of ELLs in a district is positively related to funding, that relationship is stronger among low-poverty districts (those with zero percent FRL students). The interaction term, shown in Row 3, suggests that as the percent of low-income students in a district increases, funding for ELLs decreases. This general trend holds for models 3-6, which show results for spending per student and average staff salaries. The bottom panel of Table 3 shows that while both high-FRL and high-ELL districts appear to have been disproportionately targeted by Great Recession spending cuts, the negative influence of poverty level of funding for ELLs did not change significantly. In summary, both high-poverty and high-ELL districts were disproportionally impacted by

recessionary budget cuts. While districts receive greater funding, spend more, and have higher average staff salaries as the percent of ELL students increases, these resource advantages go primarily to the lower-poverty high-ELL districts. Resource advantages for ELLs decrease as the percent of low-income students increases. These findings are generally consistent when we consider other types of resources such as average staff salaries (reported in Table 3) and student-staffing ratios (not shown here).

Table 4 provides predicted values, based on our regression results, which help place our findings in context.[3] The first row demonstrates that in 2007-08, the difference in funding between high- and low-ELL districts was $1,357, after adjusting for other cost differences. Among high-poverty districts, those at the 95th percentile of % ELL received $10,764, while those with zero ELL students received, on average, $9,812 per student, a difference of $952 or 6%. The third row of Table 4 shows that the ELL funding advantage among lower-poverty districts in 2007-08 was $2,060, or about 11%. In other words, although high-ELL districts had a funding advantage in prior to the recession, that funding advantage was twice as large among lower-poverty districts. The bottom panel of Table 4 shows how these figures changed by 2012-13, after the Great Recession state budget cuts. The funding advantage for high-ELL districts decreased to $842 per student on average, a 38% decline from the 2007-08 level of $1,357. As before, the funding advantage for ELLs is greater for districts serving lower-poverty student populations. The bottom three rows of Table 4 show that among high-poverty districts, high-ELL districts received only $680 more in per-student funding compared to otherwise similar low-ELL

[3] The dollar figures presented in Table 4 are considered "predicted values" because they represent the predicted funding rate for districts at the 5th and 95th percentile of percent of ELL students in each state (roughly 0% and 35%), holding other cost-related factors constant. These figures are close approximations to actual funding levels of low- and high-ELL districts, but are adjusted for other differences in the cost of providing education including population density, district size, the percent of students with special needs, and geographic costs of wages.

districts (7.1%), whereas among lower-poverty districts, the funding advantage for high-ELL districts was $1,373 (11.3%).

These figures are plotted in Figure 1, which shows the relationship between the percent of students classified as ELL in each district and the average funding rates, before and after the recession, for high- and low-poverty districts. As is clear, high-ELL high-poverty school districts are placed a substantial disadvantage through state funding models. Figure 2 shows the same analyses, this time based on average staff salaries across in districts serving varying levels of ELL students.

Figure 2 tells a similar story for average staff salaries across districts. The panel on the left shows that in 2007-08 among lower-poverty districts, average staff salaries across districts were positively correlated with the proportion of students classified as ELLs, whereas among higher-poverty districts, average staff salaries were negatively correlated with the proportion of students classified as ELLs increased. The right panel of Figure 2 shows that following the Great Recession, average staff salaries decreased overall (in nominal and real terms) and both high and low-poverty districts had a negative relationship with staff salaries. In 2012-13, high-poverty high-ELL districts offered the lowest staff salaries, relative to districts that were otherwise similar but had lower concentrations of FRL or ELL students.

Differences in Funding Inequities Across States

Next, we replicate the analyses described above on a state-by-state basis. Results are shown in Table 5, which ranks states according to the funding gap for emergent bilingual students. The first column shows the percent of students in each state classified as ELL students. The next two columns show predicted values of state and local funding per student, by state, for high- and low-ELL districts, holding constant student poverty level and other local cost factors.

These results are based on Model 1, where the relationship between funding and % ELL does not vary by poverty level. As expected based on the results for all states nationally, many states provide at least some additional funding for ELL students on average. Maryland, Virginia and Alaska have the most equitable funding systems with respect to emergent bilinguals, while Delaware, Nevada, and Arizona have the least equitable funding systems. The school finance system in Minnesota, which is generally assessed as an equitable system for low-income students, has less equitable funding for ELLs, whereas the finance system in Illinois, which most studies identify as inequitable, is more equitable based on funding for ELL students. Many other states, such as North Carolina, California, New Mexico, and Texas, provide roughly the same level of funding for high- and low-ELL districts. For example, Texas allocates $9,443 state and local funding per student to high-ELL districts and $8,941 to otherwise similar districts with low concentrations of ELL students, a difference of 5.6%.

What is driving differences across states in school finance equity? We compared the funding mechanisms for ELLs and FRL students across the 25 states shown in Table 2 to the average funding gaps shown in Table 5. We also considered other state-level characteristics including the size of ELL student weights, total overall K-12 spending, the extent to which ELLs are segregated across districts, and the statewide correlation between percent ELL and percent FRL (i.e., the extent to which emergent bilinguals are economically disadvantaged in each state). We found no significant relationship between state funding gaps and the use of either categorical funding or formula funding, although the bivariate correlation between ELL student weights and the funding gap (for the 13 states that use ELL student weights) is -0.77, implying that, not surprisingly, larger student weights are associated with more equitable state funding. The three states that use either reimbursement or have no specific mechanism for funding ELL students

tend to have larger funding gaps, other state characteristics held constant. States in which ELL populations are more economically disadvantaged and states that spend less on education have larger funding gaps. The state proportion of students classified as ELL, the degree to which ELLs are segregation, and the relative strength of teachers' unions (based on rankings provided in Winkler et al. 2015) are not associated with funding gaps. In short, states that have some mechanism for funding ELL students other than cost reimbursement, states with larger ELL student weights, states that spend more on K-12 education overall, and states that have less economically disadvantaged ELL populations, on average, provide more equitable financial support for high-ELL districts.

Conclusions and Policy Recommendations

Our findings suggest both high-ELL and high-poverty districts were disproportionately impacted by the Great Recession budget cuts. For districts serving high concentrations of emergent bilingual students, the additional resources they received prior to the Recession were significantly reduced during the recessionary budget cuts. In particular, the 12% funding advantage declined to 8% by 2012-13, after adjusting for local cost factors. Moreover, funding advantages for high-ELL districts are more heavily weighted towards districts serving students from wealthier family backgrounds. Meanwhile, states differ dramatically in the extent to which higher-need districts are under-resourced. These results are consistent for similar analyses of total spending and staffing levels. We provide three policy recommendations for state legislatures, state educational agencies, and the Education Department that we believe would help alleviate the compounded inequities that low-income emergent bilinguals experience.

Include or Increase Adjustments for ELL and Low-Income Students

Our analysis showed that states that include adjustments for ELL and low-income students, and those with larger funding weights, generally have more progressive funding systems, compared to other states. Although there are exceptions to this rule, the general trend suggests that state legislatures could reduce inequities by introducing or increasing funding weights for special student populations. Several states such as Arizona, Idaho, and Nevada, either provide funding for unduplicated students who identify in any one of a number of different categories including low-income and emergent bilingual, or they simply do not have funding mechanism for certain groups. In other words, districts receive additional funds for each ELL student, but districts do not receive any additional funding if that student is also classified as low-income. Other states such as Maryland, Virginia, and Oregon have designed funding weights that apply doubly for students who are both low-income and classified as ELL. These funding formula decisions recognize the additional resource needs of ELLs, low-income students, and students who fall in both categories.

Reduce Student Segregation Across School Districts

Disparities in funding across school districts requires some degree of student segregation. A central argument for desegregation is that more integrated school districts necessarily results in more equitably allocated resources. However, studies show that schools are more segregated today than two decades ago, in part because of the ending of court-ordered desegregation mandates (Gándara & Orfield, 2012). Several recent efforts are aimed at re-integrating school districts. For example, in 13 metropolitan areas, inter-district school integration policies aim to reduce inequalities across districts by allowing students to transfer between districts in the same metropolitan area (Finnigan & Holme, 2015). The National Coalition on School Diversity

recommends that state education agencies include progress toward racial and socioeconomic integration as a factor in statewide accountability systems. The group also recommends that state education agencies allocate a portion of Title I funding toward programs that foster racial and socioeconomic integration (National Coalition on School Diversity, 2015). State education agencies would need to re-envision the definition of evidence-based Title I interventions (educational programs supported through federal Title I funding) to include strategies for reducing segregation.

Track Subgroups of Students Classified as ELL in Federal Datasets

The National Center for Education Statistics (NCES) in the Department of Education does not currently collect data on subgroups of students classified as ELL. For example, researchers can measure the percent of students in each district who are classified as ELL and the percent of students in each district in various other classifications (e.g., race/ethnicity, special education enrollment, or free/reduced price lunch), but not students who are ELL and Hispanic or low-income. Current data collection procedures do not allow researchers or policymakers to determine what percent of ELL students in a given district qualify for FRL, or identify in various racial/ethnic groups. In this study, we examined districts with high concentrations of both FRL and ELL students, but we were unable to determine the specific number of students who fall into both categories. More broadly, collecting these data would allow for more fine-grained analyses of how students are distributed across districts, potential disadvantages that emergent bilinguals may face, resources allocated to particular subgroups of ELLs, and the degree of student segregation among ELLs who are also low-income or of color. This level of data would also allow for additional research on the extent to which ELLs are identified as needing special education, perhaps highlighting issues of over- or under-representation. Finally, NCES might

consider requiring states to report students' reclassification status as is done in several states. For example, Texas tracks students who were reclassified as non-ELL within the prior two years. These data would allow for comparisons across districts in the rate at which schools are reclassifying ELLs as fluent in English.

This chapter focuses on funding for bilingual education and other instructional programs for emergent bilinguals. We measured bilingual education funding by comparing the revenues, spending, average salaries, and staffing levels in high-ELL districts to that of otherwise similar low-ELL districts. These analyses demonstrate compounded inequities, wherein districts serving ELLs in high-poverty areas are not provided with the level of resources that would provide equal educational opportunity. Policy reform that increases funding for high-poverty high-ELL districts would help educators working in these school environments draw on the many assets emergent bilinguals bring to the classroom and may provide for these students with better educational opportunities.

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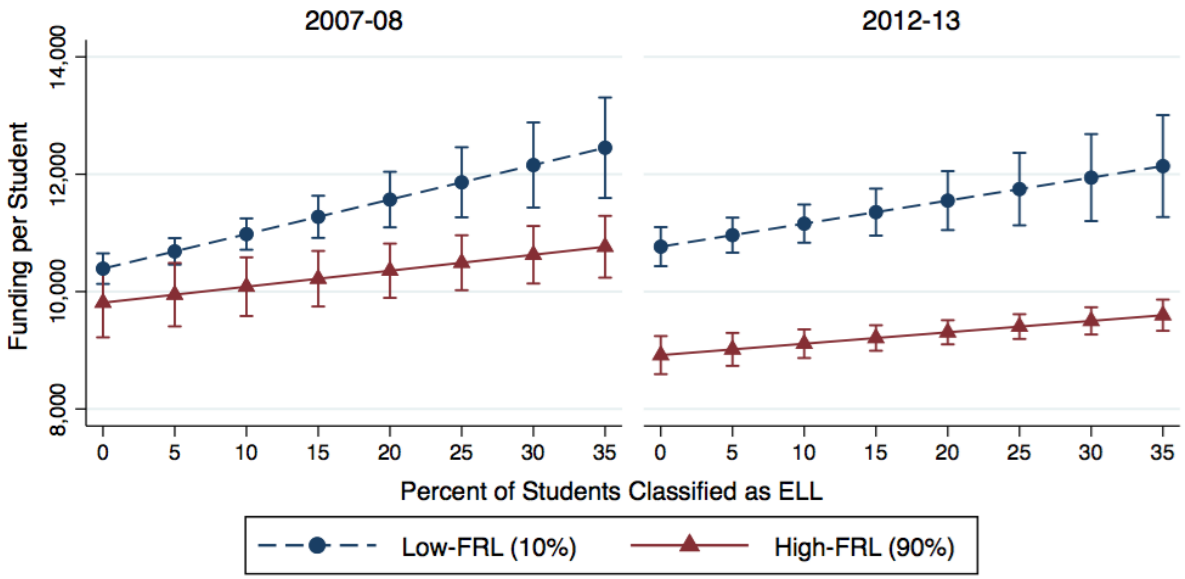
FIGURE 1

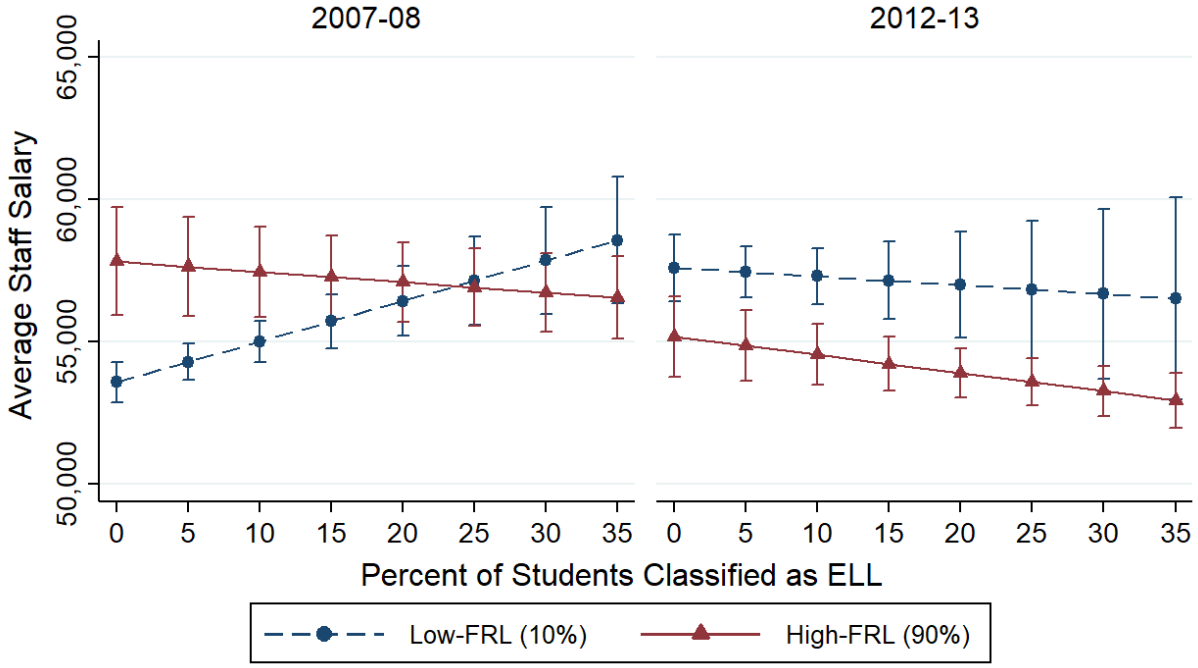
The relationship between state and local per student funding (adjusted for local differences in cost) and the percent of students classified as ELL, for high- and low-poverty districts



Note. This figure shows that while districts with greater proportions of ELL students receive additional funds on average, there remains a significant gap between high- and low-poverty districts, as measured by the percent of students eligible for free/reduced price lunch (FRL). As a result, high-ELL districts serving high-poverty student populations receive significantly less funding than high-ELL districts serving lower-poverty student populations. Funding for high-ELL high-FRL districts decreased from 2007-08 both in absolute terms and relative to other districts in the same state. Dollar figures are reported in nominal terms, and overall funding decreased by even more in real terms (after adjusting for inflation).

FIGURE 2

The relationship between average staff salaries (adjusted for local differences in cost) and the percent of students classified as ELL, for high- and low-poverty districts



Note. This figure shows the relationship between average staff salaries across districts and the percent of students classified as ELL in the district. Dollar figures are reported in nominal terms, and overall funding decreased by even more in real terms.

TABLE 1

Summary statistics for low- and high-ELL and FRL districts and all other districts, 2012-13

ELL FRL	Low Low	High Low	Low High	High High	All other districts[a]	Total
Number of Students						
Urban	0	404,049	1,969	2,992,755	6,615,983	10,014,756
Suburban	164,575	907,882	46,247	2,712,902	11,950,066	15,781,672
Rural	144,625	17,968	110,480	287,911	2,674,961	3,235,945
Total	309,200	1,329,899	158,696	5,993,568	21,241,010	29,032,373
Number of Districts						
Urban	0	34	2	114	310	460
Suburban	112	75	43	353	1,999	2,582
Rural	257	35	281	260	2,227	3,060
Total	369	144	326	727	4,536	6,102
District and student characteristics						
% ELL	0.04%	15.82%	0.01%	27.39%	4.75%	7.17%
% FRL	22.30%	23.84%	78.64%	81.38%	47.39%	51.03%
% Asian	1.0%	13.5%	0.3%	2.4%	2.2%	2.4%
% Black	1.4%	3.3%	10.2%	8.1%	6.3%	6.4%
% Hispanic	4.4%	28.0%	6.7%	61.7%	17.4%	21.6%
% Native American	1.6%	1.2%	21.7%	5.0%	2.9%	4.1%
% White	88.2%	48.6%	55.8%	20.6%	67.2%	61.8%
% multirace / other	3.4%	5.5%	5.3%	2.2%	3.9%	3.8%
Dist. Enroll.	838	9,235	487	8,244	4,683	4,758
Cost of Wage	1.38	1.64	1.26	1.42	1.37	1.38
Standardized exam scores						
Grade 3 ELA	0.602	0.380	-0.607	-1.322	-0.016	-0.161
Grade 3 Math	0.595	0.189	-0.478	-1.035	0.033	-0.088
District funding						
Total PPR	$14,724	$13,168	$12,752	$11,938	$12,508	$12,602
St./local PPR	$14,126	$12,485	$10,687	$10,216	$11,556	$11,527

[a] All other districts refers to those that fall in the middle quartiles for % English language learner (ELL) or % of student eligible free/reduced price lunch (FRL). The table is limited to high-ELL states, defined as the 25 states with the highest percent of ELL students. These states include 91% of all ELLs nationally.

Note. Low- and high-ELL districts refer to districts with fewer than 0.25% and greater than 9.05% ELL students, respectively. Low and high FRL districts refer to districts with fewer than 35.60% and greater than 67.80% FRL students, respectively. These figures correspond to the lowest and highest quartiles for 2012-13. St./local PPR refers to state and local per-pupil revenues and per-pup. exp. refers to per-pupil expenditures.

TABLE 2

Funding mechanism by state for ELL and FRL student populations

	Number of districts	Number of students	Funding Mechanism for ELL	Funding Mechanism for FRL
Alaska	50	130998	Formula (0.20)	No mechanism
Arizona	197	939976	Formula (0.115)	No mechanism
Arkansas	236	475003	Formula ($305/ELL, ~ 0.03)	Categorical ($526 to $1576)
California	864	5978861	Formula (0.20)	Formula (0.20 to 0.50)
Colorado	175	850957	Categorical	Formula (0.12 to 0.30, +$16/FRL)
Connecticut	166	517812	Formula (0.15)	No mechanism
Delaware	16	111667	No mechanism	1 instructor / 250 unduplicated at-risk stu.
Florida	67	2680074	Formula (0.147)	No mechanism
Idaho	108	270734	Categorical	No mechanism
Illinois	830	2032805	Reimbursement	Reimbursement ($355/FRL)
Kansas	275	483289	Formula (0.395)	Formula (0.456)
Maryland	24	859252	Formula (0.99)	Formula (0.97)
Massachusetts	289	889911	Formula (0.07 to 0.34)	Categorical ($2,767 to $3,422)
Minnesota	321	793777	Formula ($700/ELL, ~ 0.06)	Formula (0.5 to 1.0)
Nevada	17	431776	Formula (20:1)	No mechanism
New Mexico	87	327127	Categorical	No mechanism
North Carolina	115	1468228	Formula (0.50)	Wealth-based adjustment
Oklahoma	512	667802	Formula (0.25)	Formula (0.25)
Oregon	174	555653	Formula (0.50)	Formula (0.25)
Rhode Island	36	136401	No mechanism	Formula (0.40 of core instruction)
South Carolina	79	700247	Formula (0.20)	Formula (0.20)
Texas	1018	4886471	Formula (0.10)	Formula (0.20)
Utah	40	528364	Categorical	Categorical ($23,176,400 FY: 2015)
Virginia	132	1264880	Formula (58.8:1)	Formula (0.14 to 0.19)
Washington	274	1050308	Formula ($930/ELL, ~ 0.09)	Formula ($460/FRL)

Note. Districts in Minnesota with fewer than 20 ELLs receive a $14,000 block grant. Average district funding in Washington, Arkansas, and Minnesota is $10,382, $9,126, and $12,003, so the dollar amounts equate to student weights for ELLs of approximately 0.090, 0.033, and 0.058, respectively. Student weights for ELLs in Massachusetts vary by grade level. The table include the 25 states with the highest percent of ELLs. Delaware . North Carolina provides additional teacher staffing for districts with lower household wealth.

TABLE 3

Regression coefficients showing the relationship between district resources per student and the proportion of students in the district classified as English language learners and as low-income

	State and Local Funding per Student		Expenditures per Student		Average Staff Salaries	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Coefficients for the base school year (2008-2009)						
% ELL	3877***	6281***	4763***	9012***	3318+	16488***
	(619.85)	(1,606.67)	(617.55)	(1,654.37)	(2,015.63)	(4,928.86)
% FRL	-3658***	-3327***	-4283***	-4204***	-8992***	-7514**
	(773.97)	(761.98)	(735.79)	(745.29)	(2,630.97)	(2,586.42)
% ELL x % FRL		-3955+		-7372**		-22352**
		(2,362.80)		(2,480.15)		(7,582.87)
Coefficients interacted with 2012-13 school year						
% ELL	-1471**	-2111	-1919***	-1514	-8718**	-19147*
	(510.14)	(1,530.28)	(452.62)	(1,576.22)	(3,080.61)	(8,256.71)
% FRL	-1397***	-1585***	-1362***	-1613***	-6320***	-8330***
	(362.28)	(400.37)	(358.09)	(394.24)	(1,412.56)	(1,685.82)
% ELL x % FRL		1481.00		497.00		18214+
		(2,228.89)		(2,371.16)		(9,599.02)
R-squared	0.531	0.532	0.517	0.518	0.804	0.804
Observations	36,971	36,971	36,971	36,971	36,639	36,639

Note. Each column is a separate regression. ELL stands for English language learner and FRL stands for eligibility for free or reduced price lunch (i.e., low-income students). Models include covariates that control for differences in local cost including level of urbanicity, geographic cost of wage differentials, and district size. *** indicates statistical significance at the 0.001 level, ** indicates statistical significance at the 0.01 level, * indicates statistical significance at the 0.05 level, and + indicates statistical significance at the 0.10 level.

TABLE 4

State and local per student funding (adjusted for local differences in cost)

	High-ELL districts	Low-ELL districts	Difference
2007-08 school year			
All districts	11,200 (180.74)	9,843 (113.71)	1,357*** (213.54)
High-poverty districts	10,764 (268.42)	9,812 (301.59)	952* (403.74)
Low-poverty districts	12,451 (436.56)	10,391 (132.63)	2,060*** (456.26)
Difference	-1,687*** (512.48)	-580+ (329.46)	-1,108+ (609.25)
2012-13 school year			
All districts	10,475 (149.81)	9,633 (76.26)	842*** (168.11)
High-poverty districts	9,598 (135.52)	8,918 (165.52)	680** (213.92)
Low-poverty districts	12,139 (443.00)	10,766 (169.70)	1,373** (474.39)
Difference	-2,541*** (463.26)	-1,848*** (237.05)	-693 (520.39)

Note. This tables shows that in 2007-08, high-ELL districts received $11,200 per students in state and local funding, whereas otherwise similar low-ELL districts received $9,843. Thus high-ELL districts received an additional $1,357 in funding. However, by 2012-13, that funding advantage decreased to $842, a 38% reduction. The table also demonstrates that these differences mask variation within high-ELL districts. Among high-ELL districts, those serving high-poverty populations, as measured by the percent of students eligible for free/reduced price lunch (FRL), received, on average, $9,598 per student in state and local funding in 2012-13, compared to $12,139 for lower-poverty districts serving high concentrations of ELL students. Conversely, in 2012-13, the funding advantage for high-ELL districts in high-poverty settings was $680, compared to $1,373 for high-ELL districts in low-poverty settings. High- and low-ELL and FRL districts are defined as those at the 90th percentile within their state. Standard errors are in parentheses. Dollar figures are reported in nominal terms, and overall funding decreased by even more in real terms. *** p< 0.001, ** p< 0.01 level, * p< 0.05, and + p< 0.10.

TABLE 5

Differences in state and local funding per student between high-ELL and low-ELL districts, by state for the 25 states with the highest percent of ELL students, 2012-13

	% ELL	High-ELL	Low-ELL	Difference	% Funding Gap
Regressive / inequitable funding for ELL students (more than 7% funding gap)					
Delaware	6.4%	7896	15283	-7,388	-48.3%
Nevada	15.7%	7466	11260	-3,794+	-33.7%
Arizona	6.2%	5596	7590	-1,994**	-26.3%
Arkansas	7.1%	8428	9291	-863*	-9.3%
Idaho	6.1%	12172	13183	-1,010*	-7.7%
Minnesota	6.4%	11307	12190	-883	-7.2%
Flat funding with respect to the percent of ELL students (+/- 7% difference in funding)					
Connecticut	5.8%	17485	18092	-607	-3.4%
Massachusetts	7.3%	14824	15357	-534	-3.5%
North Carolina	6.6%	7566	7653	-87	-1.1%
California	22.7%	9103	8861	242	2.7%
New Mexico	15.8%	9357	8935	422	4.7%
Texas	15.1%	9443	8941	501*	5.6%
Washington	8.9%	10776	10248	528	5.2%
South Carolina	5.8%	11101	10566	534	5.1%
Kansas	8.8%	11165	10518	647+	6.2%
Progressive / equitable funding for ELL students (at least 7% more funding for high-ELL districts)					
Oklahoma	6.9%	8524	7777	747**	9.6%
Utah	5.7%	8375	7569	806	10.7%
Colorado	12.0%	10253	8828	1,425+	16.1%
Oregon	9.0%	10465	9011	1,454***	16.1%
Florida	9.0%	9626	7642	1,983*	26.0%
Illinois	9.4%	8681	6313	2,368	37.5%
Alaska	11.3%	19432	16183	3,250+	20.1%
Rhode Island	5.8%	13,984	11,601	2,383	20.5%
Virginia	7.4%	15406	10165	5,241***	51.6%
Maryland	6.4%	26307	12860	13,448***	104.6%

Note. High-ELL and low-ELL are defined as districts at the 5th and 95th percentiles of percent of ELLs. Models include covariates that control for differences in local cost including population density, geographical differences in wage rates, and district size. This table is ordered from least equitable to most equitable state. In previous work (Knight & DeMatthews, 2017), we controlled for district poverty rate over the six-year panel, rather than controlling for district poverty rate individually in each year, as is done in this study. These results therefore differ slightly from those previously reported in related work. *** $p < 0.001$, ** $p < 0.01$ level, * $p < 0.05$, and + $p < 0.10$.