PRIORITIZING SCHOOL FINANCE EQUITY DURING AN ECONOMIC DOWNTURN: RECOMMENDATIONS FOR STATE POLICY MAKERS

David S. Knight
(corresponding author)
College of Education
University of Washington
Seattle, WA 98195-3600
dsknight@uw.edu

Nail Hassairi
College of Education
University of Washington
Seattle, WA 98195-3600
hassairi@uw.edu

Christopher A. Candelaria
Peabody College
Vanderbilt University
Nashville, TN 37203-5721
chris.candelaria@vanderbilt.edu

Min Sun
College of Education
University of Washington
Seattle, WA 98195-3600
misun@uw.edu

Margaret L. Plecki
College of Education
University of Washington
Seattle, WA 98195-3600
mplecki@uw.edu

Abstract

State budgets temporarily crashed amid the COVID-19 pandemic and economic shutdown, placing education funding at risk. To demonstrate implications for school finance, we show that (1) school districts are racially segregated along class lines; (2) higher-poverty districts receive a greater share of funds from state, as opposed to local sources, making them especially vulnerable during economic downturns; and (3) many states made across-the-board K–12 budget reductions following the Great Recession, but those cuts disproportionately impacted high-poverty districts. A decade later, state legislators may face similar fiscal challenges. Instead of enacting across-the-board cuts, states can identify specific funding programs that already benefit lower-poverty districts or wealthier students. We demonstrate how this approach would work under different state finance models and offer recommendations for state policy makers.

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INTRODUCTION

Economic downturns negatively impact state budgets, placing education funding at risk (Baker and DiCarlo 2020; Roza 2020). Because state budgets are funded primarily through sales and income tax revenues, which are more sensitive to economic fluctuations compared with local property tax revenues, districts that rely more heavily on state—as opposed to local—funding are more vulnerable to economic recessions. And while federal stimulus money targets some of these shortfalls, the funds may not fully insulate all states from making budget cuts (Reber and Gordon 2020). In virtually every state, state funding is targeted to less wealthy school districts and those serving a greater share of low-income students. When states choose to reduce K–12 education funding using a flat or "poverty-neutral" approach (where all districts receive the same percentage reduction in state aid), those cuts may still disproportionately impact low-income students. Following the Great Recession, for example, high-poverty districts received a disproportionate share of state funding cuts, even when states made flat, across-the-board K–12 budget reductions (Knight 2017). Advocacy groups lobbied Congress to compel states to prioritize equity during the economic downturn (King 2020; Vadehra and Amerikaner 2020).

This brief outlines strategies state legislators can use to balance K–12 budgets while prioritizing finance equity. We define finance equity as providing relatively greater funding to school districts serving higher shares of students affected by poverty. An equitable finance system allocates funding "progressively" with respect to student poverty (Hinojosa 2018). We examine racial/ethnic disparities in funding and show that students who identify as Black, indigenous, Latinx, or Pacific Islander are disproportionately concentrated in high-poverty school districts, whereas students who identify as White or Asian are over twice as likely to attend a low-poverty district. The COVID-19 pandemic disproportionately impacts students of color, and the full economic, educational, and health impacts on these communities is uncertain. For students of color and low-income students, equitable school resources may play an especially important role over the next decade. As economic uncertainty looms over state budgets, we argue that legislators can prioritize finance equity by understanding the specific state funding programs that benefit wealthier, lower-poverty school districts.

This brief consists of five sections. We first explore how state funding matters for finance equity and why higher-poverty school districts bore a disproportionate share of funding cuts during the last recession. We then describe the role that state aid currently plays in K–12 funding systems, and the following section disaggregates state aid into specific funding programs. We show through this analysis the likely disproportionate impacts for high-poverty districts associated with seemingly neutral across-the-board cuts in state foundation aid funding. We then draw on state-specific data from Washington State to demonstrate that K–12 finance data generated from a specific state policy context provide more granular information necessary for effective state policy making. We conclude with a summary and policy considerations.

STATE FUNDING, STUDENT SEGREGATION, AND INEQUITABLE BUDGET CUTS AFTER THE GREAT RECESSION

State funding influences finance equity because state funds represent a large share of school district budgets and because students in the United States are highly segregated

Table 1. Student Race/Ethnicity and Poverty Rate in High- and Low-Poverty Districts, 2017–18

		By Poverty Quintile					
	All Districts	5 (High)	4	3	2	1 (Low)	Ratio (High/Low)
No. of School Districts	12,810	2,592	2,563	2,559	2,563	2,533	–
Poverty rate	16.4%	27.9%	21.0%	16.9%	13.3%	8.2%	3.4
Student Race/Ethnicity							
American Indian/Alaskan Native	1.0%	1.9%	1.2%	0.8%	0.9%	0.6%	3.3
Asian/Pacific Islander	4.9%	2.9%	3.4%	4.1%	5.0%	7.5%	0.4
Black/African American	14.2%	24.0%	13.8%	15.0%	12.6%	9.4%	2.5
Latinx	26.5%	37.1%	36.6%	28.2%	24.2%	15.5%	2.4
All other/not available	4.1%	3.7%	3.8%	4.5%	4.2%	4.6%	0.8
White	49.2%	30.4%	41.2%	47.4%	53.2%	62.4%	0.5

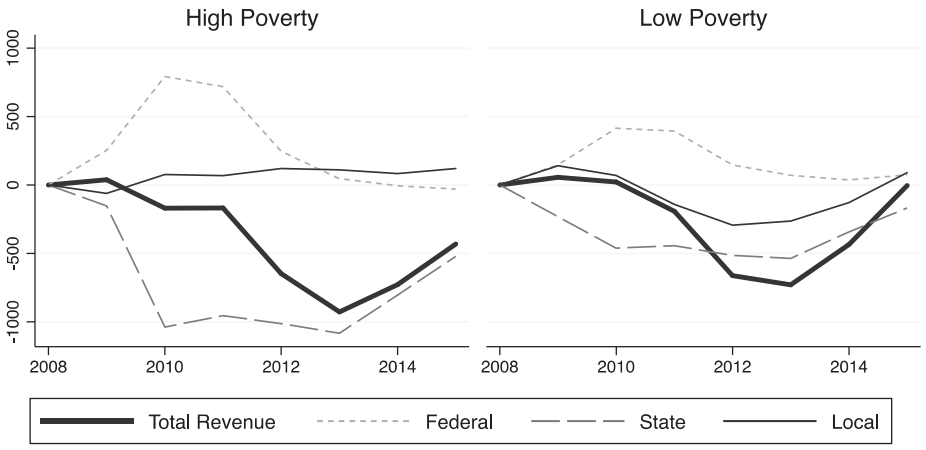
Notes: Poverty quintiles have approximately the same number of districts in each quintile, for each state. Districts in poverty quintile 5 are the 20 percent of districts in each state with the highest poverty rates. This more straightforward approach to identifying high- and low-poverty districts differs from the regression-based approach used in all other figures and tables. Latinx refers to the federal category Hispanic, non-White. Ratio shows the odds that a student who identifies in a particular racial/ethnic category is enrolled in a high- rather than low-poverty district. Sample includes 12,810 school districts that serve 47.4 million students. Hawaii and Washington, DC are excluded because both operate a single school district. Source: National Center for Education Statistics and U.S. Census Bureau.

across districts. School districts receive over 90 percent of funding from state and local sources, on average, although the balance of state and local revenues varies substantially across states. State funding accounts for at least 30 percent of total funding in all states and up to two thirds or more in some states, such as New Mexico, Vermont, and Washington (see Appendix table A.1).[1] The extent to which individual school districts rely on state aid also varies widely *within* states. State school finance decisions therefore have a significant influence over how school districts are funded. Those decisions have implications for school finance equity because students are segregated across districts.

Table 1 demonstrates one form of student segregation, comparing student race/ethnicity across high- and low-poverty school districts. The table uses poverty quintiles, where districts in each state are ranked by student poverty rate and an equal number of districts is placed in each bin for each state. Districts in poverty quintile 5 represent the 20 percent of districts in each state with the highest poverty rates. Underrepresented students of color are far more likely than White students to attend high-poverty school districts. Nationally, Black and Latinx students are over twice as likely to attend a high-poverty district than a low-poverty district. American Indian/indigenous students are 3.3 times as likely, while White and Asian students are 50 and 40 percent less likely to attend a high-poverty district than a low-poverty district, respectively. In short, state funding decisions—both how funding is allocated and where legislators choose to expand or cut budgets—have serious consequences for school finance equity along both racial/ethnic and socioeconomic terms.

Education funding cuts that followed the Great Recession highlight this point. Figure 1 shows changes in local, state, federal, and total funding from 2007–08 to 2014–15.

1. Appendix tables, figures, and text are available in a separate online appendix that can be accessed on *Education Finance and Policy*'s Web site at https://doi org/10 1162/edfp_a_00356.



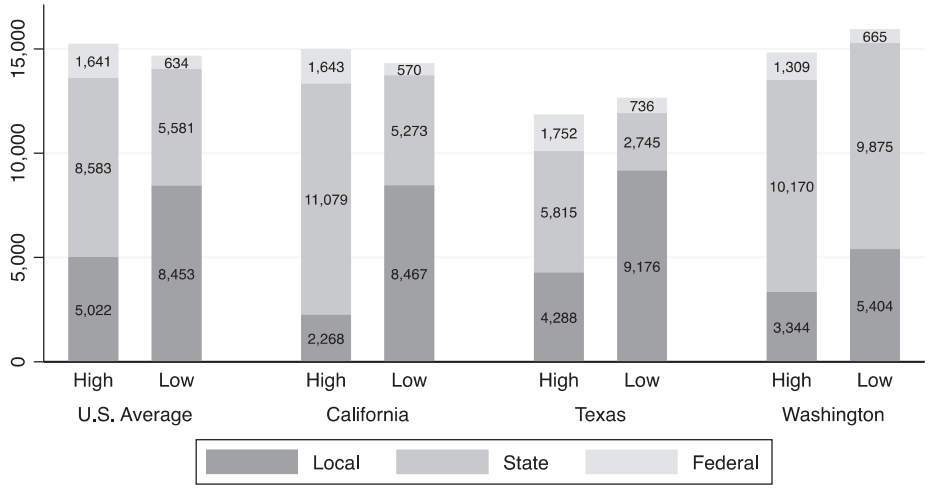
Notes: High- and low-poverty districts are defined based on regression-adjusted values estimated at the 10th and 90th percentile of poverty rate within the state. Funding amounts are adjusted for differences in cost factors, including district size, urbanicity, average cost of labor, and the percent of students enrolled in special education and classified as limited English proficient. Values are adjusted for inflation to 2018–19 dollars.

Figure 1. Change in Per-Student Revenue from 2007–08 to 2014–15

We compare high- and otherwise similar low-poverty districts, based on regression-adjusted estimates. Specifically, we regress funding per student on district poverty rates and control for other factors that affect cost—including district size, urbanicity, the local cost of labor, and the percent of students classified as English learners or receiving special education services. We estimate predicted values at the 10th and 90th percentiles of poverty within each state, which roughly approximates the average funding rate for districts in the lowest and highest quintile of student poverty within each state (see online Appendix B for details on this methodology). We find that high-poverty districts experienced a $900 per-student reduction in total funding, on average, compared with approximately $700 for low-poverty districts. High-poverty districts experienced twice the decline in state funding as did low-poverty districts, on average ($1,000, compared with $500), but kept revenues afloat through increases in local revenues. Although national data on local property taxes are not available, prior analyses suggest that in states where districts have discretion over local revenues, higher-poverty districts were more likely to increase their own local property tax rates (Chakrabarti, Livingston, and Roy 2014; Knight 2017; Evans, Schwab and Wagner 2019). Consistent with related studies, we find federal stimulus funds also helped stabilize funding for high-poverty districts after the Great Recession, but federal funds also benefited low-poverty districts (Chakrabarti and Setren 2011; Baker 2014). Importantly, studies show that these funding cuts led to lower test scores and college matriculation rates (Shores and Steinberg 2019; Jackson, Wigger, and Xiong 2021).

HOW STATE FUNDING INFLUENCES SCHOOL FINANCE EQUITY

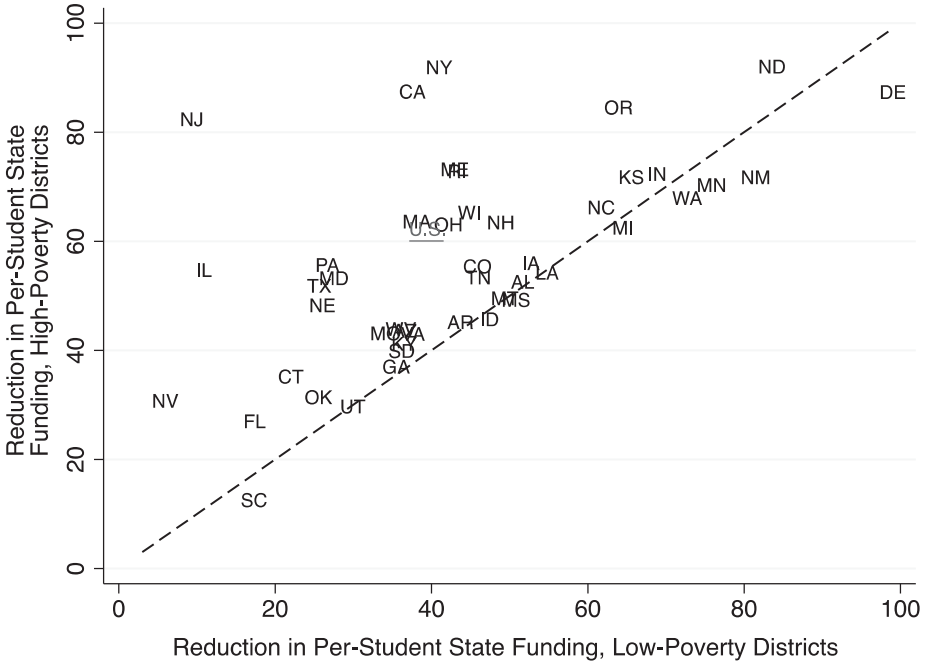
Figure 2 shows how states currently distribute state aid across high- and otherwise similar low-poverty districts, based on the same regression-adjusted estimates. Nationally, on average, states allocate 54 percent more aid to their high-poverty districts compared



Notes: High- and low-poverty districts are based on regression-adjusted values estimated at the 10th and 90th percentile of poverty rate within the state, with an equal number of districts in each quantile. Funding amounts are adjusted for differences in cost factors, including district size, urbanicity, average cost of labor, and the percent of students enrolled in special education and classified as limited English proficient. Online Appendix figure A.1 shows unadjusted funding amounts. All values are also adjusted for inflation to 2018–19 dollars. The underlying numbers for this figure are shown in online Appendix table A.2.

Figure 2. Average Per-Student Adjusted Federal, State, and Local Funding in All U.S. School Districts and in Selected States, for High-Poverty and Low-Poverty School Districts, 2017–18

with similar low-poverty districts in the same state ($8,583 compared with $5,581). Figure 2 also highlights differences in average adjusted funding among three selected states—California, Texas, and Washington. We chose these states because each uses a different approach to fund their foundation plan, which is the base level of funding that a state guarantees to every school district. California uses a Foundation Aid model (Odden and Picus 2015), in which all districts are required to levy a specified property tax rate (1 percent for California) and in exchange receive the base level of funding regardless of how much local property tax revenue the district raises. Funding weights for "high-need" students increase the base allotment proportionately. As shown in figure 2, high-poverty districts in California receive 74 percent of total funding from the state ($11,079) compared with 37 percent for low-poverty districts. Texas's foundation plan combines a Foundation Aid model and a Guaranteed Tax Base model, where state aid is targeted to low property wealth districts to help equalize tax bases. Unlike California, Texas has no income tax. The state relies more heavily on local property taxes to fund the base allotment. The allocation of state and local funding across districts in Texas is similar to California except that Texas has more local tax revenues, less overall state aid, and the system as a whole is regressive in that it sends a greater amount total per-student funding to low-poverty districts. In contrast to Texas and California, Washington's foundation plan is a fully state-funded model. The state assumes full financial responsibility for the base foundation level of funding and allows districts to pass local property tax levies to pay for enrichments and capital projects. Under this system, even the wealthiest districts receive the amount of state revenue the state legislature has determined is enough to support basic education.

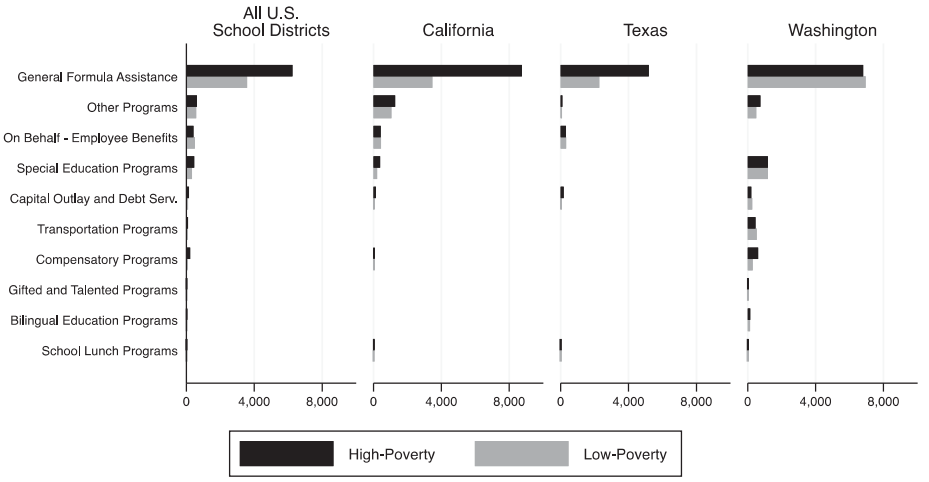


Notes: Estimates are based on predicted values from a regression of per-student General Formula Assistance (the variable labeled "c01" in the U.S. Census F-33 survey; see Cornman, Ampadu, and Hanak 2020) on district poverty rate, the percent of students receiving special education services and classified as English learners, enrollment size, and urbanicity, separately for each state. To determine the funding cut, we multiply predicted per-student values for high- and low-poverty districts by one percent. Alaska, Vermont, and Wyoming are excluded for this figure as they each have values far exceeding those shown.

Figure 3. Reduction in Per-Student State Funding if States Enacted a 1 Percent Across-the-Board Cut in Foundation Aid, by District Poverty Rate, 2017–18

Appendix figure A.1 shows that nationally, districts enrolling the highest percent of White students and Asian students within each state generate the highest level of local revenue, and state aid partially equalizes total funding between predominantly White or Asian districts and those serving the highest percent of Black, Latinx, or indigenous students. The key takeaways for Appendix figure A.1 and figure 2 are (1) districts enrolling historically marginalized students receive a greater share of funds from state—as opposed to local—sources, (2) there is variation across states (based on the design and purpose of K–12 state aid in each state), and (3) federal funds represent a small share of total funding.

To gain a better sense of the disparate impacts of across-the-board cuts in state foundation aid funding—and to clarify the problems with this approach—we calculate the percent of total state aid allocated through the foundation formula for each state (funds categorized as General Formula Assistance in the U.S. Census F-33 survey). We then multiply per-student foundation aid funding by 1 percent, to model how much funding different types of districts would lose under this funding reduction. Figure 3 plots the reduction in funding for high- and low-poverty school districts for a 1 percent cut to foundation aid for each state. For states on the dashed 45-degree line, an across-the-board foundation aid cut impacts high- and low-poverty districts equally. For states above and to the left of the dashed line (most states), an across-the-board state funding



Notes: State revenue categories are based on those included in the U.S. Census Annual Survey of School System Finances, F-33 (Cornman, Ampadu, and Hanak 2020; U.S. Census Bureau 2020). Revenue categories are ranked by level of funds allocated to low-poverty school districts in Washington. See the notes for figures 1 and 2 for definitions of high- and low-poverty districts. Values are adjusted for inflation to 2018–19 dollars. The underlying numbers for this figure are shown in online Appendix table A.3.

Figure 4. Average Adjusted Per-Student Funding of State Aid Programs, by District Poverty Rate, 2017–18

cut would disproportionately impact high-poverty school districts. For the typical state (labeled "U.S." in figure 3), this seemingly income-neutral funding cut would reduce state revenues by $62 per student in high-poverty districts and $36 in low-poverty districts. Because general formula assistance represents over 70 percent of all state funding, on average, results are generally similar when we consider a 1 percent cut to all state funding and not just foundation aid.

UNDERSTANDING THE COMPONENTS OF STATE AID

To avoid across-the-board cuts, which are likely to disproportionally harm low-income students and students of color, legislators can look at specific state funding categories. Figure 4 disaggregates state funding across all categories included in the U.S. Census F-33 survey, again using the same regression-based methods as above. As shown in the first set of bars, the majority of state aid (69 percent), falls into formula funding or "general formula assistance." Formula funding is generally progressive since most state funding formulas are designed to address differences in student need and disparities in local property tax revenue.

Other state funding streams include payments for employee benefits made on behalf of districts, special education, staff improvement, capital outlay and debt service, transportation, and compensatory programs. All other funding streams represent less than 1 percent of state aid. On-behalf payments (e.g., pensions and group health insurance) are regressive, on average, with an additional $82 per student allocated to low-poverty districts. Most other funding streams are moderately progressive, with the exception of compensatory programs, which (on average) are substantially progressive, targeting four times as much funding to high-poverty districts as low-poverty ($215 compared with $53).

State-level analyses provide some clues about how specific state systems operate. In California, 15 percent of total state aid falls into "Other Programs," which captures a wide range of relatively small state aid programs, such as summer school, desegregation, community services, and regional centers (Cornman, Ampadu, and Hanak 2020). Transportation, gifted, bilingual education, and most compensatory program funds are allocated through the funding formula and do not have specific categorical funding streams. The same is true in Texas, although both states have small progressive funding streams to support capital expenses and school lunch programs. Washington's formula funding allocates roughly the same funding level regardless of student poverty, which aligns with its fully state-funded system (a model used by only five other states). Special education is also allocated evenly, and the state's only progressive funding stream is compensatory education and the category "other programs." As we discuss in the next section, "capital outlay" includes multiple state funding streams for Washington that vary in their contribution to finance equity and, when combined, appear regressive. And in general, national school finance data (the U.S. Census F-33 survey) do not disaggregate state funding categories with sufficient detail to guide effective state policy making.

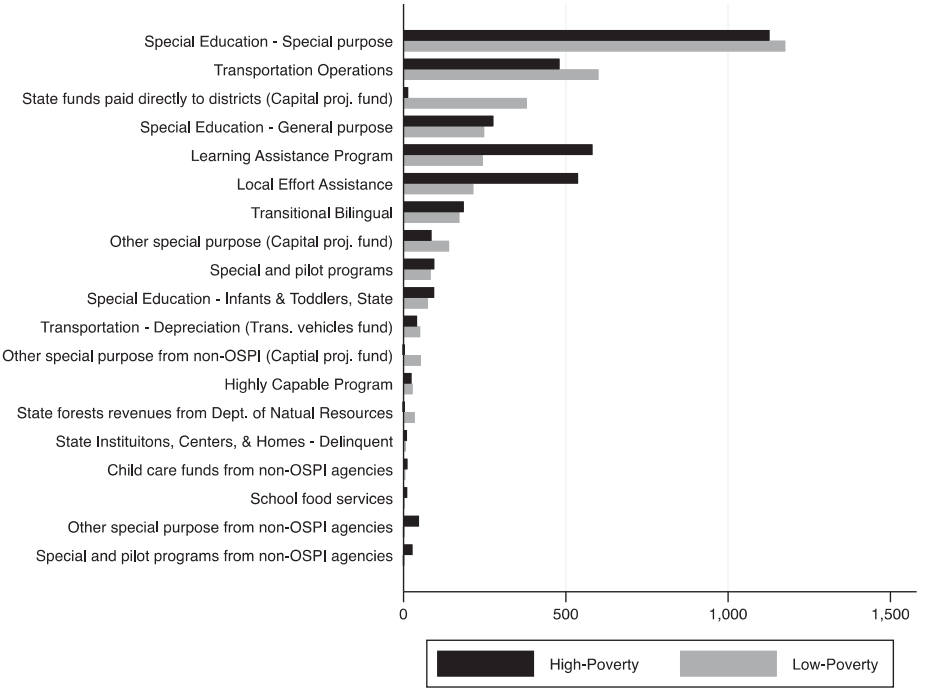
THE VALUE OF LONGITUDINAL ANALYSIS WITH STATE-SPECIFIC DATA

While U.S. Census school finance data disaggregate state funding into fourteen separate categories designed to be comparable across states, states do not necessarily use all of these categories. The second largest funding stream within national data is "Other Programs," suggesting that a significant proportion of state aid does not fit within the thirteen other prespecified categories in federal data. Relatedly, some federal categories include multiple state programs. State data also have the advantage of being more up to date. To demonstrate these points, we draw on the F-196 school district finance survey from the Washington Office of the Superintendent for Public Instruction.[2]

Figure 5 displays predicted funding rates for high- and low-poverty districts for every state funding program in Washington. For visual clarity, we omit general formula assistance and any program that accounts for less than 1 percent of total state aid. The figure demonstrates that most state funding streams are distributed relatively evenly between high- and low-poverty districts, aligning with federal data shown in figure 4. The only two substantially progressive funding streams within the Washington state finance system are the Learning Assistance Program (LAP) and Local Effort Assistance (LEA), while funding paid directly to districts through the capital projects fund is the only substantially regressive program. LAP and LEA send over twice as much funding to high-poverty districts compared with otherwise similar low-poverty districts, with each providing approximately $350 more per student in high-poverty districts. LEA (which is a guaranteed tax base for low-wealth districts), and state payments for capital projects both fall under the federal category "capital outlay," implying that federal data wash over important differences in how various Washington state funding streams are allocated.

Last, we examine these same categories longitudinally. The left panel of figure 6 shows that funding for special education, transportation operations, and LAP have

2. See https://www k12 wa us/policy-funding/school-apportionment/instructions-and-tools/administrative-budgeting-and-financial-reporting-guidance.



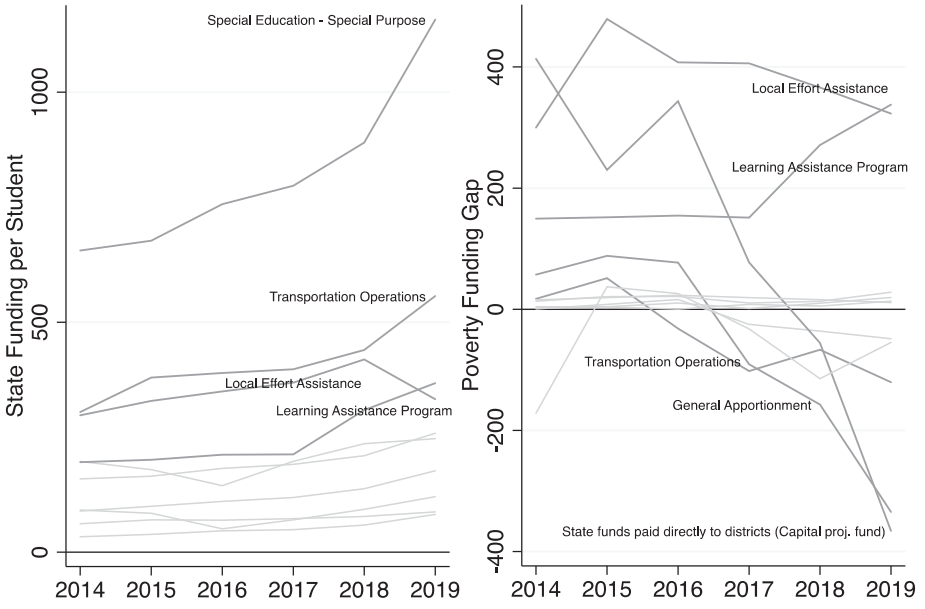
Notes: State revenue categories are based on those fund-category-program accounting numbers from the Office of the Superintendent for Public Instruction (OSPI) F-196 school finance survey. Unless otherwise noted, all revenue categories are directed through OSPI and deposited in the general fund. Revenue categories are ranked by level of funds allocated to low-poverty school districts. See the notes for figures 1 and 2 for definitions of high- and low-poverty districts. Values are adjusted for inflation to 2018–19 dollars. The underlying numbers for this figure are shown in online Appendix table A.4.

Figure 5. Average Adjusted Per-Student State Funding for High- And Low-Poverty Districts in Washington by State Funding Stream, 2018–19

increased significantly over the past five years, while the other seven state funding streams have seen more modest increases (general formula funding has also increased, but for visual clarity is excluded from the left side panel). The right panel shows that LEA and LAP have consistently targeted additional funds to high-poverty districts. General apportionment (formula funding) was modestly progressive from 2013–14 to 2015–16, but now provides about $300 per student more to low-poverty districts. Interestingly, state funds paid to districts for capital projects was strongly progressive in 2013–14, providing a $400 per student funding advantage for high-poverty districts, but is now strongly regressive. Further analyses show that this trend is not caused by changing student demographics, but rather a different set of districts receiving these funds. As noted, much of this more granular detail is missing from federal school finance data.

POLICY CONSIDERATIONS

With any change to state funding, lawmakers should consider not just which jurisdictions win and lose, but how students and families are affected. During times of fiscal duress, state leaders and education advocates need to be clear about which state funding streams should be protected if finance equity is a priority. This analysis



Notes: Poverty funding gap is defined as the difference in per-student state revenues between high- and low-poverty districts, based on regression-adjusted estimates. Local Effort Assistance and the Learning Assistance Programs allocate more funding to high-poverty districts and therefore have a positive funding gap (a funding advantage). The five funding accounts with poverty funding gaps greater than $100 in absolute value are labeled and bolded, and six others with funding gaps close to $0 are shown but not labeled. In total, the figure includes the 11 largest funding accounts, which together constitute 98 to 99 percent of state funding each year (for visual clarity, General Apportionment is not shown on the left panel). Figures are adjusted for inflation to 2018–19 dollars.

Figure 6. Average Adjusted Per-Student Funding and Funding Gaps Between High- and Low-Poverty Districts for Selected State Revenue Streams in Washington State, 2013–14 to 2018–19 (2018–19 dollars)

provides a roadmap for doing this work. We highlight several state funding programs that disproportionately benefit students from low-income households. But we also point to funding streams that benefit school districts enrolling a greater share of White students, or districts serving wealthier student populations.

We argue that cutting specific categorical funding programs that benefit wealthier districts is preferrable to a general fund reduction that is conditional on district poverty rate. First, many districts allocate their general fund progressively across schools (Shores and Ejdemyr 2017; Knight 2019), so making large general fund cuts to lower-poverty districts may negatively affect students from low-income households in those districts. In contrast, categorical funds that a state allocates regressively are less likely to be allocated progressively at the local level (Smith et al. 2013). Second, implementing a broad general fund cut relegates the important work state legislators do to understand how money flows through a state education system, what programs are effective or ineffective, and which students benefit.

Most importantly, we show that across-the-board reductions to general formula funding will create regressive budget cuts in most states, and states should therefore avoid this approach. The "Maintenance of Equity" provision, included in the American Recovery Plan of 2021, helps safeguard higher-poverty districts through 2022–23 (Education Trust 2021), but adverse budget impacts can arise years after an initial economic shock (Knight 2017). In the few states where general formula funding is distributed

roughly evenly between high- and low-poverty districts (or even regressively, see figure 3), legislators could prioritize finance equity by reducing general formula funding while expanding funding targeted to low-income students or to low-wealth districts (e.g., LAP and LEA in Washington, respectively). District poverty rates—as well as local property wealth and district racial/ethnic diversity—are not perfectly correlated, and states may need separate provisions to prioritize specific equity-based funding streams. Many states do not provide low-wealth districts with any capital improvement financial support; the pandemic and economic recession may be an ideal time for investments in district infrastructure. Legislators can also reexamine longer-term financial commitments, including Hold Harmless agreements and state pensions, which place increasing pressure on state finance systems. State policy makers and advocates should conduct their own analyses of school finance data to determine the best approach to prioritizing equity in their state's budgeting decisions.

State education leaders should also advocate for federal support during an economic crisis. Federal stimulus following the Great Recession, which amounted to $54 billion, helped patch holes but did not prevent states from making substantial cuts that disproportionately impacted low-income students and students of color. Policy makers will need to provide schools with a wide range of supports in the coming years, and adequate and equitable funding will be essential.

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REFERENCES

Baker, Bruce D. 2014. Evaluating the recession's impact on state school finance systems. *Education Policy Analysis Archives* 22(91): 1–30.

Baker, Bruce D. 2020. *Figure 5: National fiscal effort trend: Direct K-12 education expenditures as a percentage of gross state product (GSP), U.S. average, 2004–2018*. Available http://schoolfinancedata org/report21_figure5/. Accessed 26 July 2021.

Baker, Bruce D., and Matt Di Carlo. 2020. The coronavirus pandemic and K-12 education funding. Washington, DC: Albert Shanker Institute.

Chakrabarti, Rajashri, Max Livingston, and Joydeep Roy. 2014. Did cuts in state aid during the Great Recession lead to changes in local property taxes? *Education Finance and Policy* 9(4): 383–416. 10 1162/EDFP_a_00141

Chakrabarti, Rajashri, and Elizabeth Setren. 2011. The impact of the Great Recession on school district finances: Evidence from New York. Staff Report No. 534. New York: Federal Reserve Bank of New York.

Cornman, Stephen Q., Osei Ampadu, and Kaitlin Hanak. 2020. *Documentation for the NCES Common Core of Data School District Finance Survey (F-33), School Year 2016–17 (Fiscal Year 2017)*. Available https://nces ed gov/ccd/pdf/2020304_FY17F33_Documentation pdf. Accessed 26 July 2021.

Education Trust. 2021. The American Rescue Plan Act of 2021—What's in it for equity? Washington, DC: The Education Trust.

Evans, William N., Robert M. Schwab, and Kathryn L. Wagner. 2019. The Great Recession and public education. *Education Finance and Policy* 14(2): 298–326. 10 1162/edfp_a_00245

Hinojosa, David. 2018. Essential building blocks for state school finance systems and promising state practices. Palo Alto, CA: Learning Policy Institute.

Jackson, C. Kirabo, Cora Wigger, and Heyu Xiong. 2021. Do school spending cuts matter? Evidence from the Great Recession. *American Economic Journal: Economic Policy* 13(2): 304–335.

King, John B. 2020. Letter to Lamar Alexander and Patty Murray, chairman and ranking member of the Senate Help Committee. Washington, DC: The Education Trust.

Knight, David S. 2017. Are high-poverty school districts disproportionately impacted by state funding cuts? School finance equity following the Great Recession. *Journal of Education Finance* 43(2): 169–194.

Knight, David S. 2019. Are school districts allocating resources equitably? The Every Student Succeeds Act, teacher experience gaps, and equitable resource allocation. *Educational Policy* 33(4): 615–649. 10 1177/0895904817719523

Odden, Allan, and Lawrence O. Picus. 2015. *School finance: A policy perspective,* 6th ed. New York: McGraw-Hill.

Reber, Sarah, and Nora Gordon. 2020. Supporting students and promoting economic recovery in the time of COVID-19: Options for federal aid to elementary and secondary education. Washington, DC: The Brookings Institution.

Roza, Marguerite. 2020. How the coronavirus shutdown will affect school district revenues. Washington, DC: The Brookings Institution.

Shores, Kenneth, and Simon Ejdemyr. 2017. Pulling back the curtain: Intra-district school spending inequality and its correlates. SSRN Working Paper No. 3009775.

Shores, Kenneth, and Matthew P. Steinberg. 2019. Schooling during the Great Recession: Patterns of school spending and student achievement using population data. *AERA Open* 5(3): 1–29. 10 1177/2332858419877431

Smith, Joanna, Hovanes Gasparian, Nicholas Perry, and Fatima Capinpin. 2013. Categorical funds: The intersection of school finance and governance. Washington, DC: Center for American Progress.

U.S. Census Bureau. 2020. *Annual survey of school system finances,* 2018. Available https://www census gov/programs-surveys/school-finances html. Accessed 22 July 2021.

Vadehra, Emma, and Ary Amerikaner. 2020. COVID-19 cuts are hitting schools that serve low-income students the hardest: Congress can and should change that. New York: The Century Foundation.