

Establishing Priorities for Education Finance Under Fiscal Uncertainty: Recommendations for Washington State Policymakers

David S. Knight
Margaret L. Plecki

University of Washington
College of Education[‡]

February 2022

[‡] The policy brief is one of a series of reports resulting from a research project titled “A Roadmap to Reducing Barriers to Educational Justice in Washington State.” The project was conducted in collaboration with the University of Washington, Washington State University, and partnering organizations, with support from the Washington Education Association.

Suggested Citation

Knights, D. S., & Plecki, M. (2021). Establishing priorities for education finance under fiscal uncertainty: Recommendations for Washington State policymakers. Seattle, WA: University of Washington.

Acknowledgements

The authors wish to thank the following individuals for helpful feedback on earlier drafts of this brief: Nancy Beadie, Ana Elfers, Christopher Candelaria, and Min Sun. Nail Hassairi provided excellent research assistance. A related policy brief appears in *Education Finance and Policy* available at https://doi.org/10.1162/edfp_a_00356.

Establishing Priorities for Education Finance Under Fiscal Uncertainty:
Recommendations for Washington State Policymakers

OVERVIEW

Barriers to Educational Justice

- Historical, political, and economic forces in the State of Washington have contributed to vast racial and economic disparities in local property values and school funding.
- Students who identify as Black, Indigenous, Latinx, Native Hawaiian, Pacific Islander, Asian, or with more than one racial/ethnic category, and other minoritized students of color, disproportionately attend higher-poverty school districts.
- The state recently increased overall funding through several major school finance reforms, but those increases disproportionately benefited White students and lower-poverty school districts.
- The COVID-19 pandemic has impacted families and communities in harmful and inequitable ways. Many school districts face uncertain financial outlooks, with both short term federal stimulus, but short and long-term costs associated with health and safety measures, virtual learning, and potential staffing challenges moving forward. Federal stimulus funding for K-12 will support districts but funds must be spent within three years and the state lacks a long-term plan for supporting school finance equity.
- During the last economic recession that began in 2008, state legislators passed education funding cuts that disproportionately impacted minoritized students of color and low-income students.

Promising Practices

- Among the largest 11 funding programs in Washington's K-12 finance system, which together account for 98 percent of state aid, the Learning Assistance Program and Local Effort Assistance are the only two funding programs that are allocated in a substantially progressive manner over several years. Both programs allocate twice as much funding per student to high-poverty districts as they do to low-poverty districts, and both send slightly greater funds to districts serving greater proportions of Black, Indigenous, and Latinx students.

Key Concepts and Frameworks

- We define finance equity based on the extent to which state funding is allocated progressively along two factors: student race/ethnicity and family income level. A state school finance system demonstrates racial/ethnic finance equity by providing equal or greater funding for school districts enrolling predominantly students of color, compared to districts with similar cost factors that enroll predominantly White student populations. We define income-based school finance equity as providing relatively greater funding levels to school districts serving higher shares of students affected by poverty. We highlight substantial racial/ethnic and socioeconomic segregation across school districts in Washington and nationally as a way to motivate greater attention to how the states allocate public education funding.

EXECUTIVE SUMMARY

The COVID-19 pandemic has dramatically altered school district budgets, creating instability and uncertainty for school leaders in Washington. On the one hand, the state's *McCleary v. Washington* State Supreme court case led to a \$7 billion infusion of new funding. Federal stimulus will further support districts over a three-year period starting in 2021, and funds were targeted to higher-poverty school districts. The American Recovery Plan includes a “maintenance of equity” provision that prevents states and districts from disproportionately cutting state and local funding in higher-poverty schools. On the other hand, as this brief demonstrates, new *McCleary* money disproportionately benefits higher-income and predominantly White school districts. Moreover, districts must spend their federal stimulus funds by October 2024, potentially creating a fiscal cliff, and the financial outlook moving forward is unclear for many districts.

School districts serving higher percentages of students of color and low-income students often bear the brunt of state budget cuts. For example, during the last major recession, states made across-the-board K-12 funding cuts, but those cuts disproportionately impacted historically marginalized students, including students affected by poverty, and students who identify as Black, Indigenous, Latinx, Native Hawaiian, Pacific Islander, more than one racial/ethnic category, and other minoritized students of color. How state legislators shape school finance policy in the coming years – and what aspects are prioritized – will be a critical component shaping educational opportunity for Washington students.

In this brief, we describe how Washington State legislators can prioritize finance equity when making changes to the state's K-12 funding system over the coming years. The state recently adopted major school finance reforms after *McCleary*. We use school district finance data from the Washington Office of the Superintendent for Public Instruction to understand post-*McCleary* funding allocation and to identify specific state funding accounts within the Washington school finance system that disproportionately benefit predominantly White and low-poverty school districts.

First, we find that *McCleary* reforms increased overall funding, but drove large disparities along racial and economic lines. For example, from 2014-15 to 2020-21, higher-poverty school districts – the roughly 60 districts out of 295 in Washington that fall in the top quintile of U.S. Census poverty rates – experience an increase in inflation-adjusted state and local funding by \$1,800 per-student, from \$11,300 to \$13,100, an increase of 16% from 2014-15 levels. But wealthier, low-poverty districts experience a \$3,700 increase over the same period, an increase of 31%. Averaging per-pupil funding data over the three most recent years, from 2018-19 to 2020-21, we find that low-poverty districts generate over twice as much local revenue as high-poverty districts. State funding targets additional dollars to higher-poverty districts, but only accounts for a portion of the funding gap created by local tax revenues. Districts serving the highest percent of White students receive 31% greater local revenues than districts enrolling the highest percent of Latinx students, and state funding adds to this funding gap. In short, our analyses show that after full implementation of the *McCleary* school finance reforms, **state revenue is not nearly progressive enough to make up for income-based disparities in local revenue, and state revenue actually contributes to racial/ethnic funding gaps in Washington.**

Next, we examine trends over time and show how specific funding accounts contribute to these disparities. For example, we show that over the past five years, there was a shift in the distribution of state funds for capital projects. State funding for capital projects moved from benefiting high-poverty school districts serving high percentages of minoritized students of color, to benefiting lower-poverty districts serving higher percentages of White students. The Learning Assistance Program and Local Effort Assistance are the only two state funding programs that disproportionately benefit high-poverty school districts over an extended period.

Finally, we examine how Washington state K-12 funding patterns compare to other states nationally. This analysis shows that the state's approach to fully funding basic education for all school districts is unique. While most states target aid to their highest-poverty school districts, Washington distributes state aid evenly across school districts. As noted, the state has only two funding streams that are substantially progressive, the Learning Assistance Program and Local Effort Assistance (LEA). The Office of the Superintendent for Public Instruction has stated that LEA is not part of basic education and therefore not constitutionally protected under the state's recent school finance reforms.

Limited research provides guidance on conducting equity-minded K-12 budget reforms. Based on our analyses, **we recommend that state legislators expand LEA funding and the Learning Assistance Program, as these disproportionately benefit low-income students and students of color.** The state could also consider adding student weights to the prototypical funding model, allowing students identified as low-income to be weighted at 1.5 or 2.0 students, for example. Should budget cuts become necessary, the state may consider examining the capital projects fund, which disproportionately benefits higher-income school districts in some years. Our analyses demonstrate how legislators can analyze their own state's data to determine how to prioritize equity when making statewide school finance decisions. Most importantly, the state's K-12 finance system has historically funded all districts similarly, but after recent reforms, the system now sends greater funds per student to districts serving greater shares of White students and lower-poverty student populations. The vast differences in educational outcomes across race and class lines suggest that Washington school systems have not made enough progress in addressing longstanding societal inequities. By prioritizing finance equity, Washington state legislators can begin to restore the educational debt built up over the nation's history.

Establishing Priorities for Education Finance During a Recession:
Recommendations for Washington State Policymakers

The COVID-19 pandemic has placed unprecedented challenges on U.S. public education. School districts around the country are facing fiscal uncertainty, with one-time federal stimulus funding rapidly approaching a spending deadline of October 2024. Meanwhile, unstable economic swings in the past years, related to the ripple effects of the global pandemic, add strain to states' economic conditions (Baker & DiCarlo, 2020; Griffith, 2020; Roza, 2020). State budgets are funded primarily through sales and income tax revenues, which are far more sensitive to economic fluctuations than are local property tax revenues. Like many states around the country, Washington school districts are especially vulnerable to economic downturns because schools are funded primarily through state aid, with local tax revenues and federal aid making up a smaller share of total funding. Moreover, within the state, the school districts most reliant on state aid – those with lower average property wealth and less local property tax revenue – are placed at even greater risk. Because students of color and low-income students in Washington attend school districts with lower local property wealth, on average, any K-12 state funding cuts may disproportionately impact students who already are historically underserved. Following the Great Recession, for example, studies show high-poverty school districts received a disproportionate share of state funding cuts on average nationally (Knight, 2017; Vadehra & Amerikaner, 2020).

This policy brief outlines strategies that Washington state legislators can use to prioritize finance equity. We define finance equity along two factors, student race/ethnicity and family income level. A state school finance system demonstrates racial/ethnic finance equity by providing equal or greater funding for school districts enrolling predominantly Black, Indigenous, Latinx, and Asian/Pacific Islander students and other minoritized students of color, compared to districts with similar cost factors that enroll predominantly White students. We define income-based school finance equity as providing relatively greater funding levels to school districts serving higher shares of students affected by poverty. We highlight substantial racial/ethnic and socioeconomic segregation across school districts in Washington and nationally, as a way to motivate greater attention to how the states allocate public education funding.

While our analytic approach is applicable to other contexts, Washington is an important case for several reasons. The state's finance system is heavily reliant on state aid, the state recently implemented several school finance reforms following a the *McCleary v. Washington* State Supreme Court Case, and the state held longer school closures than many other states.ⁱ Students of color and students from low-income households in Washington will be placed at greater risk and the provision of adequate school resources may play an especially important role in Washington over the next decade. **Our analyses show that recent *McCleary*-related finance reforms have disproportionately benefited low-poverty districts serving greater proportions of White students.** We argue that Washington legislators can prioritize school

finance equity by expanding specific funding programs that disproportionately benefit high-poverty school districts. Legislators may also consider adding student weights to the prototypical school model and identifying mechanisms for increasing state tax revenues for K-12 education.

This brief is comprised of four sections. We first explore the role of state aid in contributing to K-12 school finance equity in Washington. In section two, we identify specific funding streams that reduce or contribute to finance inequities in Washington and examine trends over time. Then in section three, we compare finance equity in Washington to other states nationally. Section four includes a summary and policy recommendations.

1. How State Funding Influences School Finance Equity in Washington

How state funding influences finance equity in a given state depends on the level of state funding allocated each year and the extent to which students are segregated across school districts. Table 1 and Figure 1 show the proportion of total K-12 funding that comes from federal, state, and local sources for Washington school districts and compares those rates to other selected states. Washington school districts receive twice as much state funding as they do local funding, whereas nationally, state and local funding are approximately even (Washington ranks far lower among states in funding as a proportion of state gross domestic product, a topic we discuss later). California and Oregon school districts also rely more heavily on state aid, though not to the same extent as Washington. Heavy reliance on state aid in Washington means that state school finance decisions have a significant influence over school funding. Those decisions have implications for school finance equity because students are segregated across districts.

TABLE 1

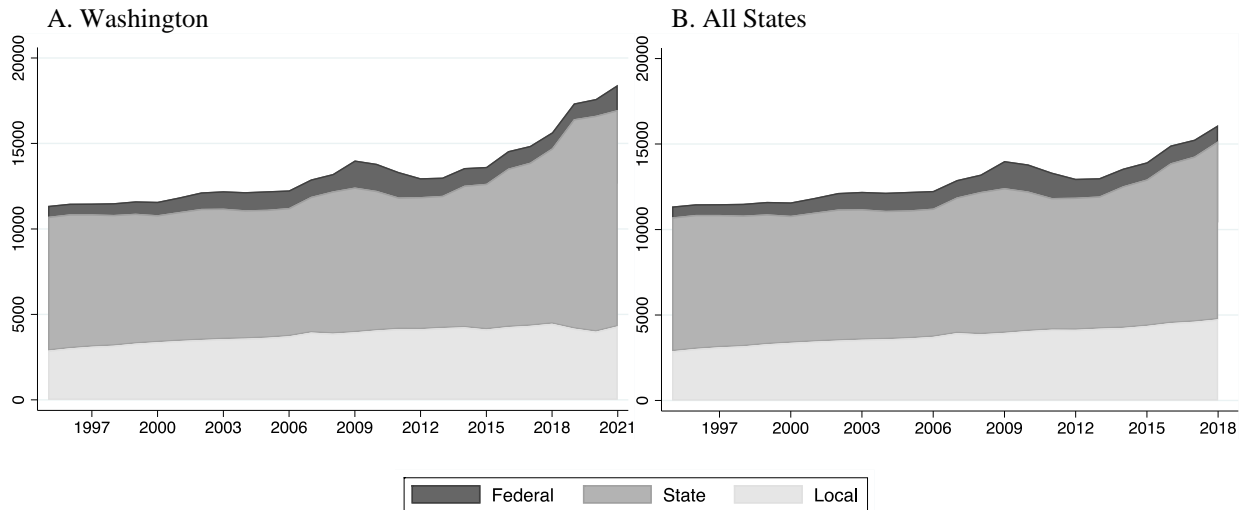
Average federal, state, and local funding in Washington and other selected states, 2017-18

	Federal		State		Local		Total	Rank (% State)
Washington	901	6.4%	8,866	62.9%	4,328	30.7%	14,094	8
All U.S. States	1,058	7.5%	6,461	45.9%	6,560	46.6%	14,079	
<i>Selected states</i>								
Vermont	1,222	5.5%	18,998	86.0%	1,882	8.5%	22,102	2
New Mexico	1,716	14.4%	7,891	66.4%	2,279	19.2%	11,885	4
California	1,068	7.7%	7,887	56.9%	4,917	35.4%	13,872	17
Oregon	891	7.1%	6,538	52.3%	5,067	40.5%	12,496	21
Wisconsin	936	6.6%	6,237	44.2%	6,941	49.2%	14,114	23
New York	1,418	5.2%	11,004	40.6%	14,652	54.1%	27,074	40
Florida	1,143	11.0%	4,050	39.1%	5,158	49.8%	10,351	42
Texas	1,117	9.7%	4,108	35.7%	6,271	54.5%	11,496	48
Massachusetts	838	4.3%	7,498	38.2%	11,284	57.5%	19,619	44
New Hampshire	946	5.2%	5,609	31.1%	11,467	63.6%	18,022	50

Note. Figures are unadjusted, so differences in dollar amounts across states partly reflect differences in costs. Vermont and New Hampshire represent the highest and lowest ranked states by percent of funding from the state.
Source: U.S. Census Annual Survey of State and Local Government Finances.

FIGURE 1

Average per-pupil federal, state, and local funding in Washington and all U.S. school districts



Note. Data for Washington from 2014-15 through 2020-21 are drawn from the state's F-196 finance dataset. All other data are drawn from the U.S. Census Annual Survey of State and Local Government Finances and National Center for Education Statistics F-33 dataset. Dollar values are adjusted for differences in geographic cost of labor (Taylor, 2006) and adjusted for inflation to 2020-21 academic year. The x-axis reflects the second half of the academic year.

Table 2 demonstrates one form of student segregation, comparing student demographic characteristics in high-poverty and low-poverty school districts. We divide Washington's 295 districts into quintiles based on the percent of students classified as low-income and make similar calculations for each state nationally. In both Washington and nationally, students who identify as a person of color are far more likely than White students to attend high-poverty school districts. For example, among high-poverty districts in Washington, 57% of students identify as Latinx, compared to 10% in low-poverty Washington districts, implying that Latinx students in Washington are over five times as likely to attend high-poverty districts than low-poverty districts, compared to 2.7 times nationally. Students in Washington who identify as American Indian / Indigenous or Alaskan Native are 15.9 times more likely to attend a high-poverty district than a low-poverty district, compared to 4.9 times more likely nationally. Black students in Washington are 1.5 times more likely to attend a high-poverty district than a low-poverty district. White and Asian students in Washington are 60 and 80% less likely to attend a high-poverty district than a low-poverty district, respectively. Pacific Islander/Hawaiian Native students in Washington are more segregated into high poverty districts than White or Asian students, but national data are not disaggregated to this extent. In short, the data show substantial student segregation across school districts, particularly in Washington State. Together, Tables 1 and 2 demonstrate that state funding decisions – both how funding is allocated and where legislators choose to cut funding – have serious consequences for school finance equity along both racial/ethnic and socioeconomic terms.

TABLE 2

Student race/ethnicity and poverty rate in high and low-poverty districts, 2017-18

	Washington				All U.S. Districts			
	All Districts	High-Poverty	Low-Poverty	Odds Ratio	All Districts	High-Poverty	Low-Poverty	Odds Ratio
Poverty rate	11.6%	26.2%	4.3%	6.1	16.4%	30.3%	6.8%	4.4
<i>Student race/ethnicity</i>								
Amer. Indian / Indigenous	1.2%	6.2%	0.4%	15.9	1.0%	2.5%	0.5%	4.9
Asian / Pacific Islander	7.7%	2.8%	14.2%	0.2	4.9%	3.0%	8.4%	0.4
Black / African American	4.3%	2.1%	1.4%	1.5	14.2%	26.8%	9.1%	3.0
Latinx	23.3%	57.2%	10.4%	5.5	26.5%	37.4%	13.9%	2.7
Other / not avail.	9.1%	4.4%	7.6%	0.6	4.2%	3.7%	4.5%	0.8
White	54.4%	27.2%	65.9%	0.4	49.1%	26.6%	63.7%	0.4

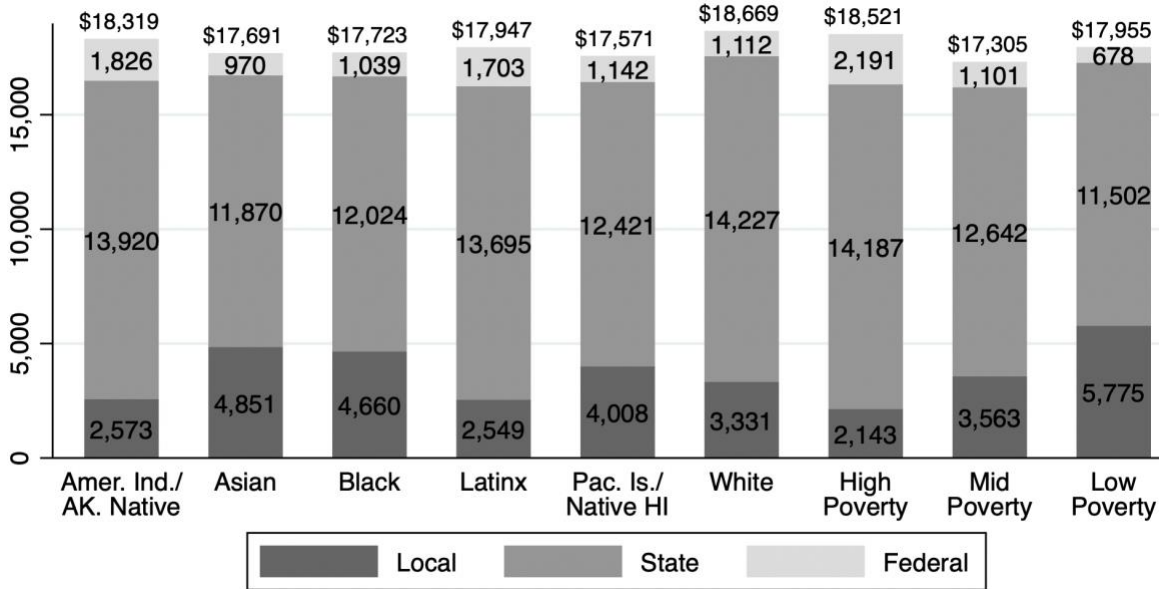
Note. High- and low-poverty districts are those that fall in the highest and lowest quintile of poverty rate within each state, based on U.S. Census Data. Odds ratios show the odds that a student who identifies in a particular racial/ethnic category is enrolled in a high rather than low-poverty district. Data that further disaggregates student race/ethnicity for Pacific Islander / Hawaiian Native are not available nationally.

Figure 2 shows how Washington currently distributes state aid across school districts. As before, we divide Washington school districts into quintiles of approximately 60 districts, this time based on the percent of students who identify with particular racial/ethnic categories, as well as the percent of students who are classified as low-income. Data come from the Washington Office of the Superintendent for Public Instruction (OSPI) F-196 survey, averaged over three post-*McCleary* years, from 2018-19 to 2020-21 and adjusted for inflation and geographic differences in the cost of labor (see Taylor, 2006).ⁱⁱ

The figure shows districts in Washington serving the highest percentages of Black, Indigenous, Latinx, and Pacific Islander/ Native Hawaiian students receive less overall funding than districts serving the highest percentages of White students. For example, districts serving the highest percent of Latinx students receive \$2,549, \$13,695, and \$1,703 per student in local, state, and federal funding, respectively, for a total of \$17,947 per student. Districts enrolling the highest percent of White students generate 31% greater local funds, slightly more state funds, and a total funding rate of \$18,669 per student, 4% more than districts serving the highest percent of Latinx students. Similarly, low-poverty districts generate 2.7 times as much local revenues per student as high-poverty districts. State funding is progressive with respect to student poverty, sending 23% more funding to high-poverty districts than to low-poverty districts, but overall state and local funding in Washington now benefits lower-poverty districts. The state allocates more state funding to districts serving the highest percent of White students than to districts serving the highest percent of other race/ethnicities. In other words, **state revenue is not nearly progressive enough to make up for income-based disparities in local revenue, and state revenue contributes to racial/ethnic funding gaps in Washington.** Figure 3 shows how the income-based funding gap has changed over time, particularly its expansion in the post-*McCleary* years.ⁱⁱⁱ

FIGURE 2

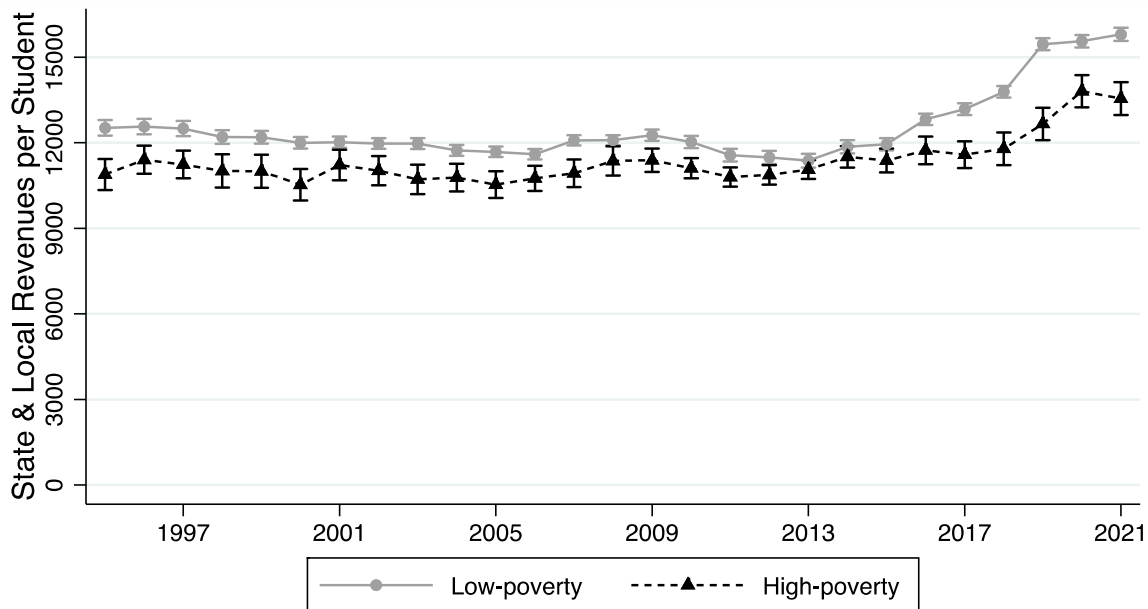
Average federal, state, and local funding for Washington districts in the highest quintile of each student racial/ethnic category and poverty rate, 2018-19 to 2020-21



Note. Funding rates reflect the average among districts in the highest quintile of each student demographic category, placing an equal number of districts (59) in each quintile. Appendix Figure A2 displays the same data, placing an equal number of students in each quintile (about 225,000). High, mid, and low poverty is based on the highest, middle, and lowest quintile. See Appendix Figure A2 footnote for additional information about funding calculations.

FIGURE 3

Average per-pupil state and local funding for high- and low-poverty districts in Washington, 1994-95 to 2020-21 (2020-21 dollars)



Note. Funding rates are adjusted for district size, urbanicity, population density, local cost of labor (Taylor, 2006), and the percent students receiving bilingual and special education services (See the Appendix for further details).

2. Washington State Funding Programs that Benefit High-Income Districts

To unpack the specific funding programs (or “accounts”) that contribute to these inequities, we disaggregate state funding by specific program, focusing on an average of the three most recent years of data from 2018-19 to 2020-21. This period covers the first three years in which *McCleary*-related legislation was fully implemented. We then explore trends over time. For these analyses, we focus on high- and low-poverty school districts as defined earlier, adjusting for various cost factors including district size, urbanicity, and local cost of wages, as well as inflation. These adjustments allow us to compare high- and low-poverty school districts that are otherwise similar (see Knight and Mendoza (2019) and the Appendix for more information about our data and methodology).

Washington OSPI Funding Accounts After *McCleary*. Figure 4 shows state funding for high and low-poverty districts, disaggregated according to revenue programs included in Washington OSPI data.^{iv} Funding programs are ranked according to the amount of funds per student allocated to low-poverty districts.^v The largest category, general formula assistance, or “General Apportionment” (excluded from Figure 4 for visual clarity) is allocated approximately evenly between high and low-poverty districts, with low-poverty districts receiving slightly more per-student (\$8,300 compared to \$8,700, respectively, a 5% gap). The second largest Washington state funding account, shown in the first set of bars in Figure 4, is Special Education – Special Purpose. Both high and low-poverty districts receive approximately \$1,200 per student from this funding program (10% of state funding). Special Education – General Purpose funds exhibit a slightly more progressive allocation but represent only 2% of state funding on average (several state funding programs in Washington are divided between general and special purpose, where the latter has more spending restrictions than the former, see OSPI, 2018).

Transportation Operations represent the next largest funding program (listed second in Figure 4 between the two special education funding programs). The *McCleary* decision identified student transportation as a component of basic education and state funding for student transportation was among the first services addressed through the *McCleary* legislative reforms (OSPI, 2014). As shown in the figure, during the post-*McCleary* years, low-poverty districts receive an extra \$150 (36% more) per student more than high-poverty districts for transportation operations. Another major funding program, Transitional Bilingual (listed in the sixth row of Figure 4), is allocated evenly between high and low-poverty districts, providing approximately \$200 per student.

Figure 4 includes three funding programs from the capital projects fund (all other programs shown pass through the General Fund). All three are progressive; the funding account labeled “State Funding Assistance—Paid Direct to District” (listed fifth in Figure 4) sends just under \$300 per student to school districts, representing only 2% of state funding, but the state allocates an extra \$100 per student more to high-poverty districts compared to low-poverty districts (\$350 compared to \$240). Two other capital project funds are allocated progressively but represent even smaller shares of total state funding. As we explain in the next section, our

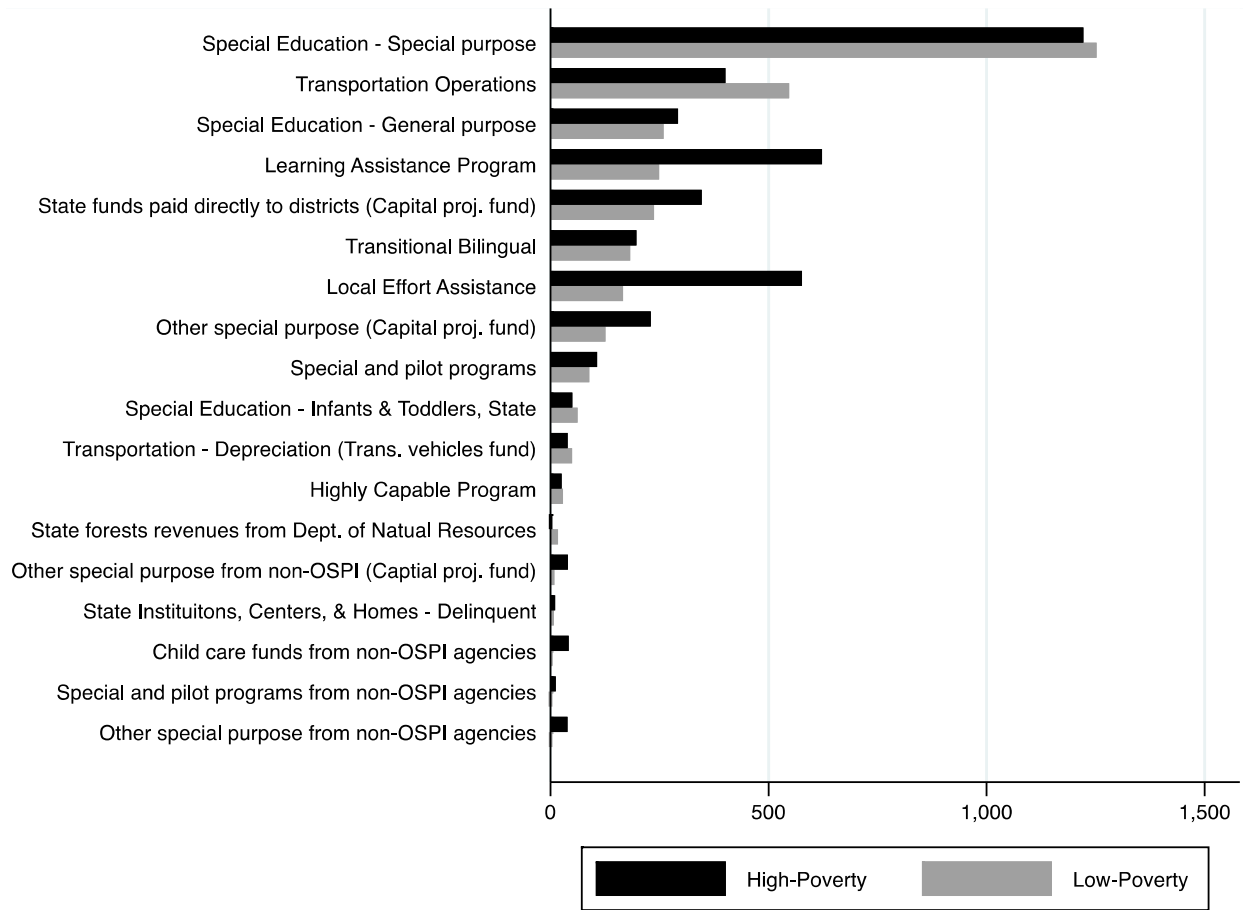
analysis of the state's capital projects fund warrants further examination. We find this fund was substantially progressive from 2013-14 to 2016-17, became regressive, and switched back to a progressive allocation in 2020-21, the most recent year of data.

The only two state funding programs in Washington that are substantially progressive are the Learning Assistance Program and Local Effort Assistance. These programs allocate an additional \$350 and \$410 per student more to high-poverty districts over lower-poverty districts. Without these programs, state funding in Washington overall would move from sending an extra \$540 per student to higher-poverty districts, a 4% funding advantage, to sending \$248 less per student, a 2% funding disadvantage for high-poverty districts (these figures differ from those shown in Figure 2 because they are adjusted for other district characteristics). All other funding programs shown in Figure 4 represent a relatively smaller share of total state funding.

To summarize, among the largest 18 funding programs in Washington's K-12 finance system, shown in Figure 4, which together account for 98 percent of state aid, **the Learning Assistance Program and Local Effort Assistance are the only two funding programs that are allocated substantially progressively. Both programs allocate twice as much funding per student to high-poverty districts as they do to low-poverty districts.** The Learning Assistance Program sends \$620 per student to high-poverty districts, compared to \$250 for low-poverty districts. Funds allocated to low-poverty districts are intended to benefit struggling students who attend lower-poverty districts. Local Effort Assistance provides additional state funding for districts with below average local property wealth that pass a local tax levy, and the strong correlation between wealth and income causes higher-poverty districts to receive proportionately more funding (\$580 per student, compared to \$170 for low-poverty districts). While these two programs narrow the gap in funding between high and low-poverty districts, their total funding is not large enough to fully close the gap. OSPI finance data include a total of 32 state funding programs with non-zero amounts during these years, including State forest revenues, the Highly Capable Program, and school food services; however, the vast majority of state funding is allocated through the programs discussed above. This analysis shows that unlike many states, **Washington's state funding for K-12 education is not progressive enough to address the disparities in local funding. Lack of progressivity stems from (a) equal or slightly regressive distribution of foundation funding, the core of state funding, and similarly regressive special education and transportation operation funding; (b) insufficient funding for the Learning Assistance Program and Local Effort Assistance.**

FIGURE 4

Average adjusted per-student state funding for high- and low-poverty districts in Washington by state funding stream, 2018-19 to 2020-21



Note. 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 Figure 1 and 2 for definitions of high and low-poverty districts. Values are adjusted for inflation to 2020-21 dollars. The underlying numbers for this figure are shown in Appendix Table A1.

Changes over time. Next, we present trends over time in state funding for the largest 11 funding programs (those with average per student amounts of at least \$50). As shown in Panel A of Figure 5, every funding program other than Local Effort Assistance increases in real terms since 2014. The decline in Local Effort Assistance likely results from changes to local property tax regulations. Levy lids enacted in 2017-18 and 2018-19 through Engrossed House Bill 2242 (HB 2242) and Engrossed Second Substitute Senate Bill 6362 (SB 6362) lower the maximum amount of local revenues districts can raise, and in so doing, lower average funding for Local Effort Assistance. That decrease disproportionately impacts high-poverty districts (the funding advantage for high-poverty districts decreases from \$440 in 2017 to \$360 by 2021, as shown in Panel B of Figure 5).

The Learning Assistance Program is the only other state funding program besides Local Effort Assistance that is substantially (and consistently) progressive. Funding for the Learning Assistance Program is constant from 2014 to 2017, providing about \$200 per student on average, but increases up to \$300 in 2018 and \$411 by 2021. This increase disproportionately benefits high-poverty districts. As Panel B of Figure 5 shows, the funding advantage for high-poverty districts for the Learning Assistance Program is constant from 2014 to 2017, sending an additional \$150 per student to high-poverty districts over lower-poverty districts, but then becomes more progressive, allocating \$370 more to high-poverty districts by 2021.

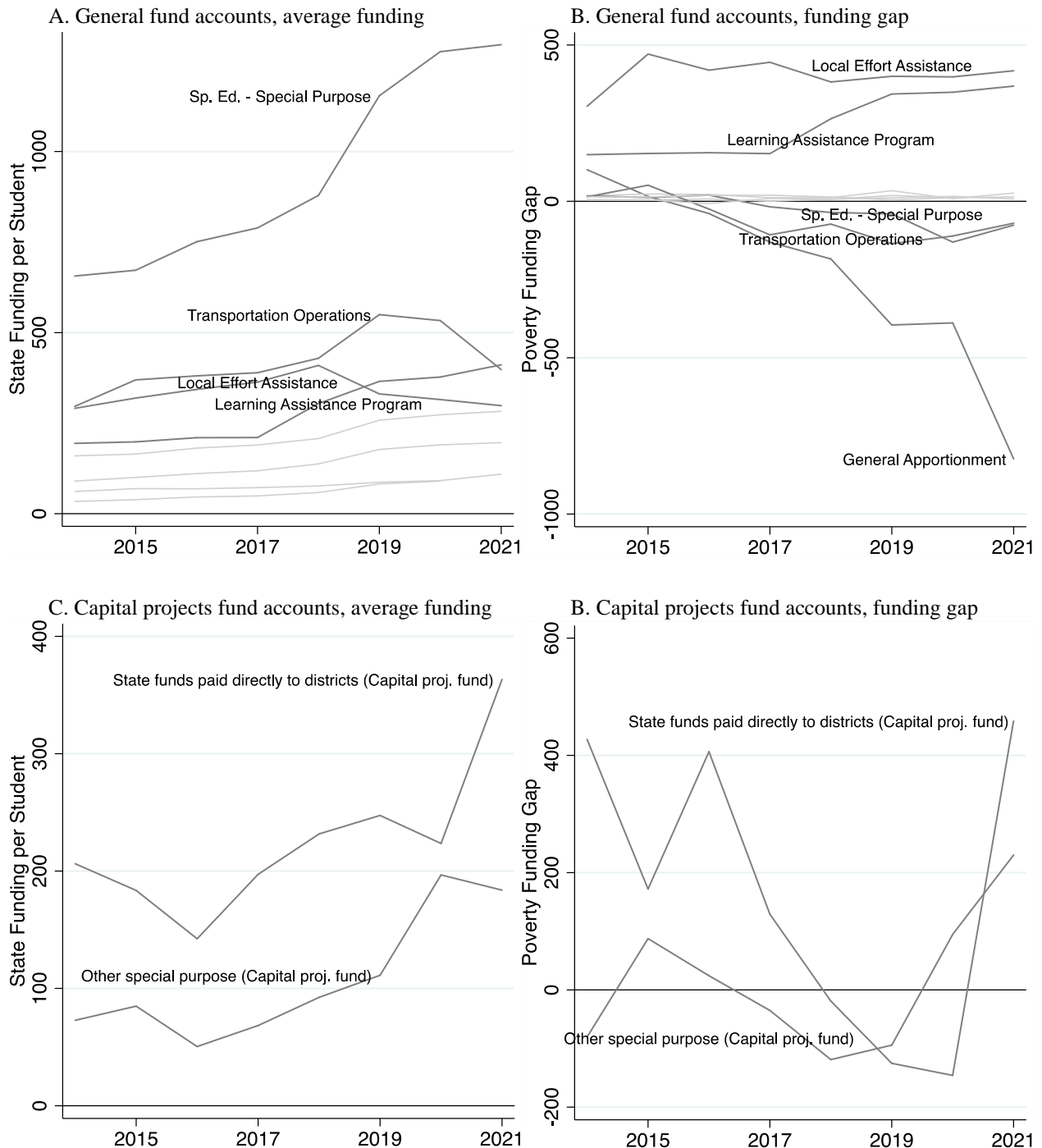
General formula assistance, or “General Apportionment” has the largest gain in funding since 2014, increasing by \$3,800 (from \$5,100 to \$8,900, not shown in Panel A of Figure 5). Almost half of this increase happens in one year alone, from 2018 to 2019, when General Apportionment increases by \$1,580. That year, SB 6362 takes effect, which substantially increases state funding for teacher salaries, allocated through General Apportionment. Panel B of Figure 3 shows that those recent increases primarily benefit low-poverty districts. From 2014 to 2016, high- and low-poverty districts receive roughly the same funding level of General Apportionment. Over the next five years, General Apportionment becomes increasingly regressive. By 2021, low-poverty districts receive \$800 per student more in General Apportionment funds than high-poverty districts. **A substantial drop in finance equity happens from 2018 to 2019, coinciding with the enactment of SB 6362. The same year, HB 2242 adds a regionalization factor that increases General Apportionment for districts in high cost-of-living areas.** Because the regionalization factor is positively correlated with household income, this policy negatively impacts the progressivity of state funding. We discuss potential reforms to the regionalization factor in our discussion section. General Apportionment becomes even more regressive in 2021, as overall state funding for K-12 continues to expand.

The second largest state funding program increase after General Apportionment is the Special Education – Special Purpose account, which approximately doubles, from \$650 to \$1,300 per student from 2014 to 2021. Those funds are relatively evenly split between high- and low-poverty districts, with an additional \$80 (6%) going to lower-poverty schools in 2021, as shown in Panel B of Figure 5. Funding for Transportation Operations increased from 2014 to 2019 and then stabilized and declined slightly in 2020 and 2021. The program became marginally regressive during these years, sending \$400 per student to high-poverty districts and \$500 to low-poverty districts, suggesting that **court-mandated increases in state funding for Transportation Operations likely disproportionately benefited low-poverty districts.**

Panels C and D of Figure 5 display trends in funding for the two largest funding accounts within the capital projects fund, both of which have increased since 2014. From 2014 to 2017, the capital projects fund account “State Funding Assistance—Paid Direct to District” is progressive, moves to a regressive allocation in 2018 to 2020, then moves back to progressive in 2021. Further analysis, described below, shows a different set of districts receiving these funds each year.

FIGURE 5

Average adjusted per-student funding and funding gaps between high and low-poverty districts for selected state revenue streams in Washington, 2013-14 to 2020-21 (2020-21 dollars)

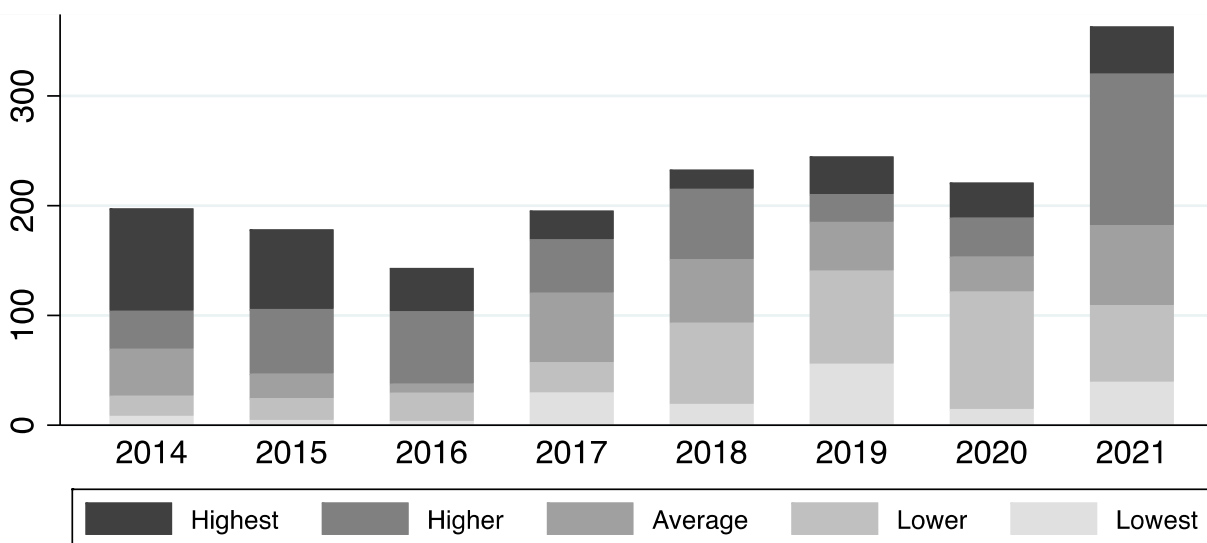


Note. Dollar values are adjusted for district characteristics using regression-based methods and adjusted for inflation to 2020-21 dollars. Funding accounts that allocate more funding to high-poverty districts have a positive funding gap (a funding advantage). Funding accounts with poverty funding gaps greater than \$100 in absolute value are labeled. In total, the figure includes the 11 largest funding accounts, which comprise 98 percent of state funding each year (for visual clarity, General Apportionment is not shown Panel A).

As noted above, the funding account “State Funding Assistance—Paid Direct to District” makes substantial shifts in allocation across districts over time, in some years sending an extra \$400 more per student to high-poverty districts over and above the allocation to low-poverty districts, while in other years disproportionately advantaging low-poverty districts. Districts code these funds under the following guidance: “Record revenue from OSPI assistance moneys paid directly to the district for renovation or construction of school plant facilities” (OSPI, 2018, p. 5-20). To further unpack this trend, we calculated the proportion of these funds that are allocated to each quintile of school district poverty rate, removing cost adjustments, and presenting the raw data adjusted only for inflation. In Figure 6, the lightest shade of grey is the first poverty quintile (lowest poverty) and the darkest shade is the fifth poverty quintile (highest poverty). The graph shows the reversal of finance equity displayed in Figure 5 results not just from increases in funding for wealthier districts. In 2014, the highest-poverty districts receive almost half of all funds from this account, while the lowest two quintiles receive a total of \$25 per student, about one-eighth of the funds allocated. As funding for this account decreases in 2015 and 2016, cuts primarily affect the highest-poverty districts. From 2017 to 2020, when funding for this account expands, increases target districts in the bottom two poverty quintiles. In 2019 and 2020, districts in the bottom two quintiles received over half of all funds for this account. Finally, in 2021, state capital funds increase, with increases targeted to districts in the second highest poverty quintile, making the funding account more progressive compared to the prior three years.

FIGURE 6

Distribution of the revenue category “State Funding Assistance—Paid Direct to District,” by poverty rate quintile, 2013-14 to 2020-21, with equal students in each quintile



Note. The graph shows how funds for Account code 14130 (State Funding Assistance—Paid Direct to District) are distributed across districts over time by district poverty quintile, with an equal number of districts in each quintile, and average funding rates weighted by district enrollment. To construct this graph, we sum the total funds allocated to each quintile each year and divide by state enrollment, where each quintile has an equal number of students. Results are similar when quintiles have an equal number of districts rather than students and when we use time-invariant quintiles based on 2018-19 poverty rates.

In sum, state funding in Washington is allocated across 32 different funding programs, with the majority of funds (98%) allocated through 11 major programs. The largest of these is General Apportionment, which accounts for about 70% of state funds in the typical year. Only two funding programs are substantially and consistently progressive, the Learning Assistance Program and Local Effort Assistance, which together account for about 6% of state funding. Meanwhile, several funding programs are regressive, including Transportation Operations, Special Education, and, in some years, the programs in the Capital Projects fund. While tracking the allocation of these categorical funding accounts across districts is important, the state's primary funding account, General Apportionment, drives the largest income-based funding disparities within the finance system. While not displayed in graphs, we find similar funding gaps between districts enrolling the highest percentages of students of color and those serving predominantly white student populations. Latinx and Native American / Indigenous students attend districts with the largest funding gaps, on average. The rapid decline in progressivity for General Apportionment, particularly around *McCleary*-based finance reforms, suggests the state needs to fundamentally alter base allocation policies to promote greater fiscal equity. We provide some initial policy recommendations in the final section of this report.

While the *McCleary* reforms are associated with reduced finance equity, they also increase funding for all districts on average. High-poverty districts in Washington are left in the precarious position of having more resources than in the past but losing ground to neighboring wealthier districts. With that said, the spread of COVID-19 is felt everywhere, but has disproportionately impacted Black, Indigenous, and Latinx communities and neighborhoods with high rates of poverty. Washington legislators thus face an imperative not to place additional disproportionate harm on these groups.

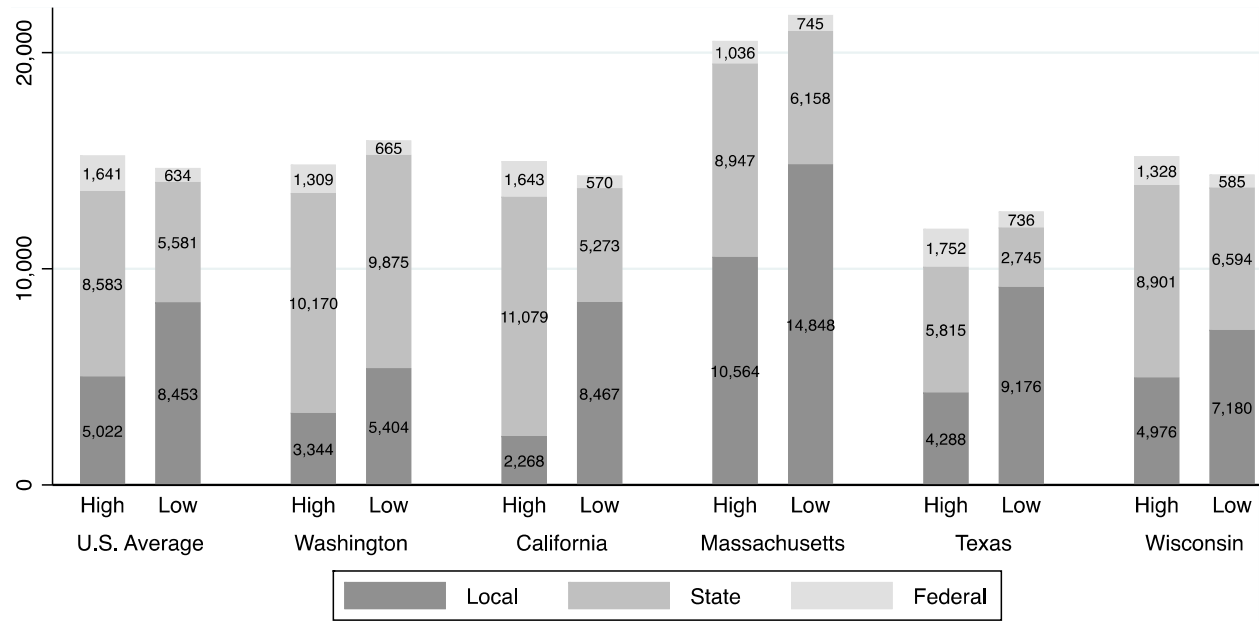
3. How Does Washington's K-12 State Funding Allocation Compare to Other States?

To gain a deeper understanding of how Washington allocates its state funding across school districts, we make similar calculations using data that include all 13,000 U.S. school districts. Figure 7 shows that on average nationally, states allocate far more aid to high-poverty school districts (those in the highest quintile of poverty for each state) than to low-poverty school districts. California, Massachusetts, Texas, and Wisconsin all follow this pattern. In contrast, Washington allocates approximately the same level of state aid to high- and low-poverty districts.

Figure 8 shows this relationship results mostly from how states allocate the general formula assistance. The figure disaggregates state funding across all sub-categories included in U.S. Census and Department of Education F-33 finance survey data (Cornman et al., 2020; U.S. Census Bureau, 2020).^{vi} As shown in the first set of bars, the majority of state aid, both nationally and in Washington, falls into general formula assistance, consistent with the OSPI data presented in Figure 4. This category includes funding of the "foundation program," a school finance mechanism that the majority of states including Washington, use to guarantee a minimum funding level for all districts (Odden & Picus, 2014).

FIGURE 7

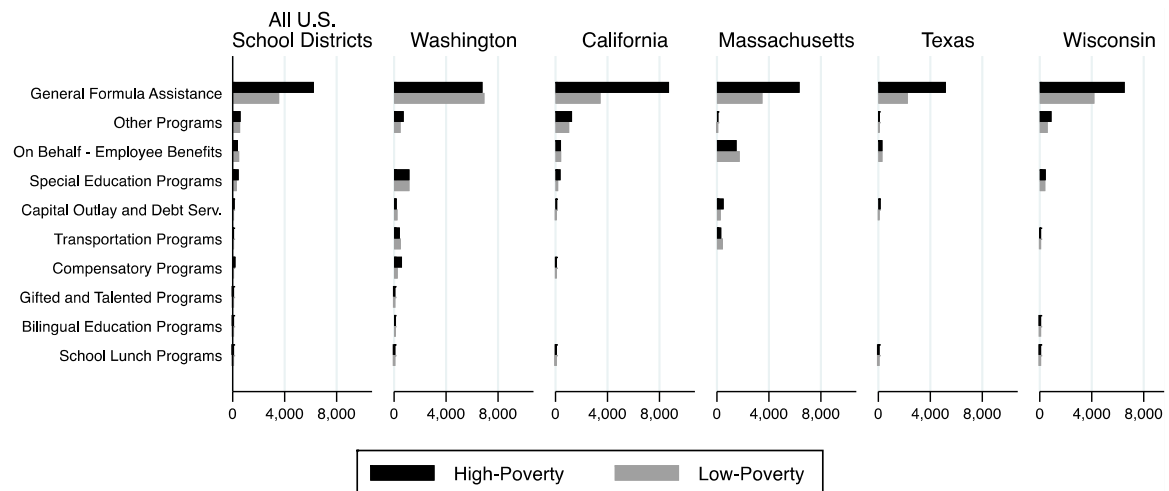
Average adjusted per-student local, state, and federal funding, by district poverty rate, 2017-18



Note. Figures are adjusted for differences in the geographic cost of labor, district size, local population density, and the percent of students receiving bilingual and special education services. High refers to districts approximately in the top quintile of poverty rate and low refers to districts in the bottom quintile (see Knight and Mendoza, 2019 and the Appendix for details pertaining to methods). Results for all states are shown in Appendix Table A2.

FIGURE 8

Average adjusted per-student funding of state aid programs, by district poverty rate, 2017-18



Note. State revenue categories are based on those included in the U.S. Census Annual Survey of School System Finances, F-33 survey. Revenue categories are ranked by level of funds allocated to low-poverty school districts in Washington. The underlying numbers for this figure are shown in Appendix Table A3.

Under most foundation programs, all districts are guaranteed a base or “foundation level” of funding, and this funding comes from a mix of local and state sources. That mix depends on the average values of property that falls within the residential boundaries of school districts. Districts in wealthier neighborhoods contribute more to the foundation level. The wealthiest districts in a state, those that are able to generate a level of local revenue per student that exceeds the foundation level, typically do not receive any state foundation aid in most states. In contrast, the least wealthy districts receive most of their foundation funding from state rather than local sources. In short, under most foundation programs, every district is guaranteed a base level of funding, where wealthier districts contribute more to their base level and less wealthy districts contributing less with state aid making up the difference for less wealthy districts. Because of the correlation between property wealth, race/ethnicity, and household income, foundation funding is typically progressive with respect to student race/ethnicity and poverty rates. This can be seen in the first set of bars of the left side panel of Figure 8. High-poverty districts receive about \$6,500 per student in general formula assistance from the state, while low-poverty districts receive roughly \$3,700.

In Washington, general formula assistance state funding is less progressive than other states on average because the state funds the entire foundation program for all districts. The design and intent of Washington’s system is to provide sufficient state funding to support what the state calls a “Basic Education” (Washington Senate Ways and Means Committee, 2020). Under this system, even the wealthiest districts receive the amount of state revenue that the state legislature has determined is enough to support basic education. This policy decision explains why Washington has a less progressive state aid allocation compared to other states.

As shown in Figure 8, after general formula assistance, the next two largest state funding streams in Washington support (a) special education services and (b) compensatory programs, or programs for students who qualify as low-income. The fourth row of bars in Figure 8 shows that nationally, high-poverty districts receive more funding for special education than low-poverty districts (40% more, see Appendix Table A3), whereas special education funding in Washington is approximately equal between high and low-poverty districts, according to federal data. While some states have moved to a census-based, “poverty-neutral” special education funding model (see Baker and Ramsey, 2010), other states allocate funds for special education based on the actual number of students identified (Dhuey & Lipscomb, 2011). Washington funds special education based on actual special education enrollments, but districts stop receiving extra funds for students in special education after special education enrollment reaches 13.5%. This approach disadvantages districts with especially high rates of special education, which studies show tend to be higher poverty districts (e.g., Baker & Ramsey, 2010).

Compensatory programs are funding streams most states use to target resources specifically to high-poverty districts, and Figure 8 shows that these funds are, not surprisingly, allocated progressively. Nationally, high-poverty districts receive over four times more compensatory program funding than low-poverty districts. Washington’s compensatory program

funding, the Learning Assistance Program, allocated over twice as much funding to high-poverty districts for the 2017-18 school year, according to federal data. Massachusetts, Texas, and Wisconsin do not report funding for compensatory programs within the federal school finance data system.

Capital Outlay and Debt Service Programs is the next largest category of state funding shown in Figure 8. U.S. school districts typically have autonomy to increase local tax revenues beyond the base foundation level of funding to pay for capital expenses and “enrichments,” which are educational services that local voters deem necessary, but the state does not support through its funding formula. Some states provide “wealth equalization” aid to districts with low average property values, so that such districts can generate the same amount of capital or enrichment funding for the same level of local property taxation. In Figure 8 (and Appendix Table A3), Capital Outlay and Debt Service Programs includes wealth equalization for capital spending (i.e., renovating or building new schools), while wealth equalization for enrichments falls under General Formula Assistance. Together these two structures, the foundation program and wealth equalization, ensure that in almost every state, state aid disproportionately benefits higher-poverty districts. Washington’s wealth equalization program, Local Effort Assistance, ensures that all districts have a property tax base approximately equal to that of the average district. As shown in the left side of Figure 6, state aid to support Capital Outlay and Debt Service Programs is progressive on average nationally, where high-poverty districts receive about \$60 per student more funds than low-poverty districts. **In Washington, high-poverty districts receive exactly \$60 less per student for capital outlay and debt service than do low-poverty districts** (see Table A3 for the numbers underlying Figure 8). These results align with those presented earlier based on OSPI data, which identified progressive funding through the LEA program, but substantially regressive funding within the state capital projects fund in some years, both of which fall under the federal category of Capital Outlay and Debt Service Programs.

The U.S. Census F-33 finance survey data include a state funding category called Other Programs, which captures a range of state aid programs such as summer school, desegregation, community services, and many others (Cornman et al., 2020).^{viii} Figure 8 shows these funding programs are allocated progressively. For Washington school districts, these other programs all together send \$770 per student to high-poverty districts and \$520 per student to low-poverty districts, adding an extra \$250 to the otherwise small state funding advantage for high-poverty districts in Washington.

States provide funding to school districts to support ongoing expenses associated with student transportation. Nationally, state funding for transportation represents only \$91 per student on average (1.3% of total state aid on average nationally), with slightly more funding going to higher poverty districts. Yet in Washington, transportation funding is almost six times that amount (\$520) and is distributed regressively, with low-poverty districts receiving an extra \$70 per student more than high-poverty districts. Other state aid programs such as bilingual

education, food services, and gifted and talented represent under two percent of state aid in both Washington and nationally. Federal data include an additional five state funding categories, but no districts in Washington report values for these categories.

To summarize, on average nationally, virtually all state funding categories included in U.S. Census and Department of Education finance data are allocated progressively (with the exception of gifted and talented education (GATE) programs and payments made to pension and fringe benefit accounts on behalf of districts). In funding GATE and making payments to health care and pension programs on behalf of school districts, states send more funding to lower-poverty school districts than to high-poverty districts, on average nationally; however, the vast majority of state aid is allocated progressively. In Washington, high-poverty districts receive only slightly more state aid than low-poverty districts. Because the state fully funds basic educational services, rather than requiring districts to contribute local revenues, **Washington sends a substantial amount of state aid to low-poverty districts and as a result, state aid over all is not especially progressive compared to other states.**

4. Discussion and Policy Recommendations

We highlight three key takeaways from this analysis. First, with any change to state funding, lawmakers should consider not just which school districts win and lose, but how students and families are affected. Recent changes to the state finance system were motivated by court order and at times rushed through the legislative process. **Those changes disproportionately benefited wealthier districts that serve greater proportions of White students.** Policymakers should consider how the state's communities of color and low-income households may be affected by education funding increases or cuts. Studies show budget reductions following the Great Recession disproportionately impacted higher-poverty school districts, and related research finds that funding cuts harm student achievement, especially for low-income students (Shores & Steinberg, 2017). The analysis described here outlines several specific funding accounts that disproportionately support school districts serving lower-poverty student populations. **State funds paid directly to districts for capital improvements and transportation funding are two funding streams that have historically benefited higher poverty districts but are regressive in most years under the new state funding model.** While transportation funding is a key element of the constitutionally mandated Basic Education Program in Washington, payments for capital improvements may have more flexibility.

The state's general formula assistance has also become regressive in recent years, most likely because of the large increase in teacher salary support that was previously paid through local taxes. Thus, another viable solution is to look for areas within the General Apportionment that are especially regressive. One obvious reform that would improve equity in the state is to remove or phase out the regionalization factor, which sends extra funds to higher cost of living areas as a way to address "regional differences in the cost of hiring staff."^{viii} In general, districts need more resources when they are located in high cost of *labor* areas, or, areas with higher average salaries. Districts in these areas must offer higher salaries to attract the same quality

educator, and therefore have a higher cost of hiring staff (Taylor, 2006). High costs of living results in part from amenities like parks, libraries, museums, foliage, and high-quality schools, which actually support district recruitment and retention efforts. **Regardless of how state policymakers choose to reform education funding, we recommend that policymakers consider how specific student groups will be impacted, perhaps by conducting their own analyses similar to the one described here.** For example, if a budget increase is under consideration, legislators could calculate and publish not only estimates of changes in funding for each individual district in the state, but also summary statistics of changes in funding disaggregated by student demographics, as is done in this brief.

Second, we note that although Washington allocates more state aid per student as a percent of total funding than most other states, the state still spends less on K-12 education based on other more relevant metrics. Many states, such as Alaska, Wyoming, New York, and others, not only allocate more state funding per student than Washington, but also spend more relative to size of their state economy. **Washington K-12 state aid represents 3.2% of the state per capita gross domestic product, ranking the state 32th by this metric** (see Appendix Table A4). Although Washington K-12 state funding has increased in recent years, the state's economy has expanded precipitously. In addition to identifying cuts, lawmakers could consider identifying strategic areas to generate new funds. While several efforts to pass a state income tax have failed, other revenue generating options exist. Texas allocates a portion of its gasoline tax to schools. California relies on the proceeds of parcel taxes, a regressive form of property tax that levies the same dollar value for each property, although most state funding in California is generated through a highly progressive income tax (Ed Source, 2020). Other states use targeted increases in the sales tax, such as through "sin taxes" on tobacco, gambling, or the lottery (Parker, Diffey, & Atchison, 2018).

Last, we recommend state policymakers consider the long-term implications of recent financial reforms. As the deadline to spend federal stimulus approaches, many districts may face fiscal uncertainty, particularly if federal funds were allocated to new hiring or long-term contracts. **Because the *McCleary* decision is focused on adequate provision of resources, the ruling does not explicitly include safeguards for equity.** The onus for ensuring the state has an equitable funding system therefore falls on state legislators. Preventing vulnerable groups from bearing an undue share of funding cuts is a start. But we suggest state education leaders outline long-term strategies for restoring equity to Washington's K-12 finance system. That equity disappeared during the rush to satisfy the State Supreme Court's *McCleary* mandates. While recent increases in state funding for teacher salaries benefit all districts, our analyses show that those increases disproportionately benefit low-poverty districts. Legislators could adjust the state's prototypical school model, which is used to estimate the foundation aid each district receives, by adding student weights. For example, in calculating staff ratios for each district, students identified as low-income could count for 1.5 or 2.0 students, and legislators could identify other student characteristics for funding weights, similar to models used in other states, such as California and Texas. The state might also consider adopting long-term plans to

dramatically expand funding for the Learning Assistance Program, which high-poverty districts could use to support for extra student support services. Local Effort Assistance could also be expanded, so that low-wealth districts can raise as much money through local property taxation as the wealthiest districts in the state. As the only two substantially progressive state funding streams, the Learning Assistance Program and Local Effort Assistance are important mechanisms for expanding finance equity.

Ultimately, education leaders in Washington will need to do more than provide adequate and equitable material resources. State education policymakers should work with community groups, advocacy organizations, and educators and ensure their voices are heard. Addressing Washington's currently inequitable finance system and preventing additional harm for vulnerable groups will not complete this work but will represent an important step.

References

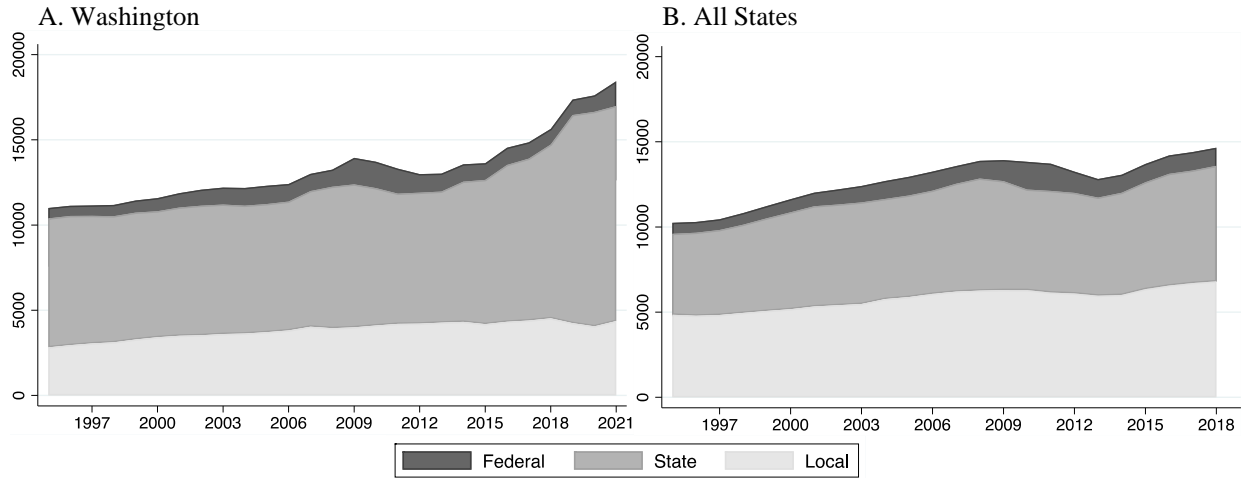
- Baker, B. D. & DiCarlo, M. (2020). The coronavirus pandemic and K-12 education funding. Washington, DC: Albert Shanker Institute.
- Baker, B. D., & Ramsey, M. J. (2010). What we don't know can't hurt us? Equity consequences of financing special education on the untested assumption of uniform needs. *Journal of Education Finance*, 35(3), 245-275.
- Baker, B. D., Farrie, D., & Sciarra, D. G. (2018). *Is school funding fair? A national report card*. 7th Edition. Newark, NJ: Education Law Center.
- Cornman, S. Q., Ampadu, O., Hanak, K. S. (2020). Documentation for the NCES School District Finance Survey (F-33), School Year 2016–17 (Fiscal Year 2017), Provisional File Version 1a (NCES 2020-304). Washington, D.C.: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved from; https://nces.ed.gov/ccd/pdf/2020304_FY17F33_Documentation.pdf
- Dhuey, E., & Lipscomb, S. (2011). Funding special education by capitation: Evidence from state finance reforms. *Education Finance and Policy*, 6(2), 168-201.
- Duncombe, W., & Yinger, J. (2007). Does school district consolidation cut costs?. *Education Finance and Policy*, 2(4), 341-375.
- Ed Source. (2020). Parcel taxes: Only in California. Retrieved from: <https://ed100.org/lessons/parceltax>.
- Evans, W. N., Schwab, R. M., & Wagner, K. L. (2019). The Great Recession and public education. *Education Finance and Policy*, 14(2), 298-326.
- Goertz, M. E. & Natriello, G. (1999). Court-mandated school finance reform: What do the new dollars buy? In H. F. Ladd and R. Chalk (Eds.). *Equity and adequacy in education finance: Issues and perspectives*. (pp. 99-135). Washington, D.C.: National Academies Press.
- Griffith, M. (2020). COVID-19 and school funding: What to expect and what you can do. Palo Alto, CA: Learning Policy Institute. Retrieved from: <https://learningpolicyinstitute.org/blog/covid-19-and-school-funding-what-expect-and-what-you-can-do>
- Hinojosa, D. (2018). *Essential building blocks for state school finance systems and promising state practices*. Palo Alto, CA: Learning Policy Institute. Retrieved from: https://learningpolicyinstitute.org/sites/default/files/product-files/Essential_Building_Blocks_State_School_Finance_Systems_REPORT.pdf
- King, J. B. (2020). Letter to Lamar Alexander and Patty Murray, chairman and ranking member of the Senate Help Committee. Washington, D.C.: The Education Trust. Retrieved from: <https://s3-us-east-2.amazonaws.com/edtrustmain/wp-content/uploads/2014/09/25103527/The-Education-Trust-Comments-to-US-Senate-HELP-Committee-Regarding-K-12-School-Reopening-June-24-2020.pdf>
- Knight, D. 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, D. S. (2020). Accounting for teacher labor markets and student segregation in analyses of teacher quality gaps. *Educational Researcher*.
- Knight, D. S., & Mendoza, J. (2019). Does the measurement matter? Assessing alternate approaches to measuring state school finance equity for California's Local Control Funding Formula. *AERA Open*, 5(3), 1-31. DOI: 10.1177/2332858419877424

- Odden, A. & Picus, L. (2014). *School finance: A policy perspective*. New York, NY: McGraw Hill.
- Office of the Superintendent for Public Instruction. (2014). Hot topic: McCleary v. State of Washington. Publication No. 14-0079. Olympia, WA: Author.
- Office of the Superintendent for Public Instruction. (2018). Accounting manual for public school districts in the State of Washington. Olympia, WA: Author.
- Parker, E., Diffey, L., & Atchison, B. (2018). How states fund pre-k: A primer for policymakers. Washington, D.C.: Education Commission of the States. Retrieved from: https://www.ecs.org/wp-content/uploads/How-States-Fund-Pre-K_A-Primer-for-Policymakers.pdf
- Revised Code of Washington (2020). RCW 28A.320.330: School district funds. Retrieved from: <https://apps.leg.wa.gov/rcw/>.
- Roza, M. (2020). How the coronavirus shutdown will affect school district revenues. Washington, D.C.: Brookings. Retrieved from: <https://www.brookings.edu/blog/brown-center-chalkboard/2020/04/09/how-the-coronavirus-shutdown-will-affect-school-district-revenues/>
- Shores, K. & Steinberg, M. P. (2017). The impact of the Great Recession on student achievement: Evidence from population data. Working paper. Retrieved from: <https://pdfs.semanticscholar.org/b193/46ed4edb59cea3e3cdc4886c0ed3e750fa8d.pdf>
- Taylor, L. L. (2006). Comparable wages, inflation, and school finance equity. *Education Finance and Policy*, 1(3), 349-371.
- Toutkoushian, R. K., & Michael, R. S. (2007). An alternative approach to measuring horizontal and vertical equity in school funding. *Journal of Education Finance*, 32(4), 395-421.
- U.S. Census Bureau. (2020). Annual survey of school system finances public elementary-secondary education finance data technical documentation, 2018. Washington, D.C.: Author. Retrieved from: <https://www.census.gov/programs-surveys/school-finances.html>
- Vadehra, E. & Amerikaner, A. (2020). COVID-19 cuts are hitting schools that serve low-income students the hardest. congress can and should change that. Washington, D.C.: Next100 and The Education Trust.
- Warth, J. & Korman, A. (2019). The current state of K-12 education funding. Olympia, WA: League of Education Voters.
- Washington Senate Ways and Means Committee. (2020). The 2020 citizen's guide to K-12 Finance. Olympia, WA: Author. Retrieved from: <http://leg.wa.gov/LIC/Documents/InformationAndEducation/Citizens%20Guide%20to%20K-12%20Finance.pdf>

Appendix A: Additional Tables and Figures

APPENDIX FIGURE A1

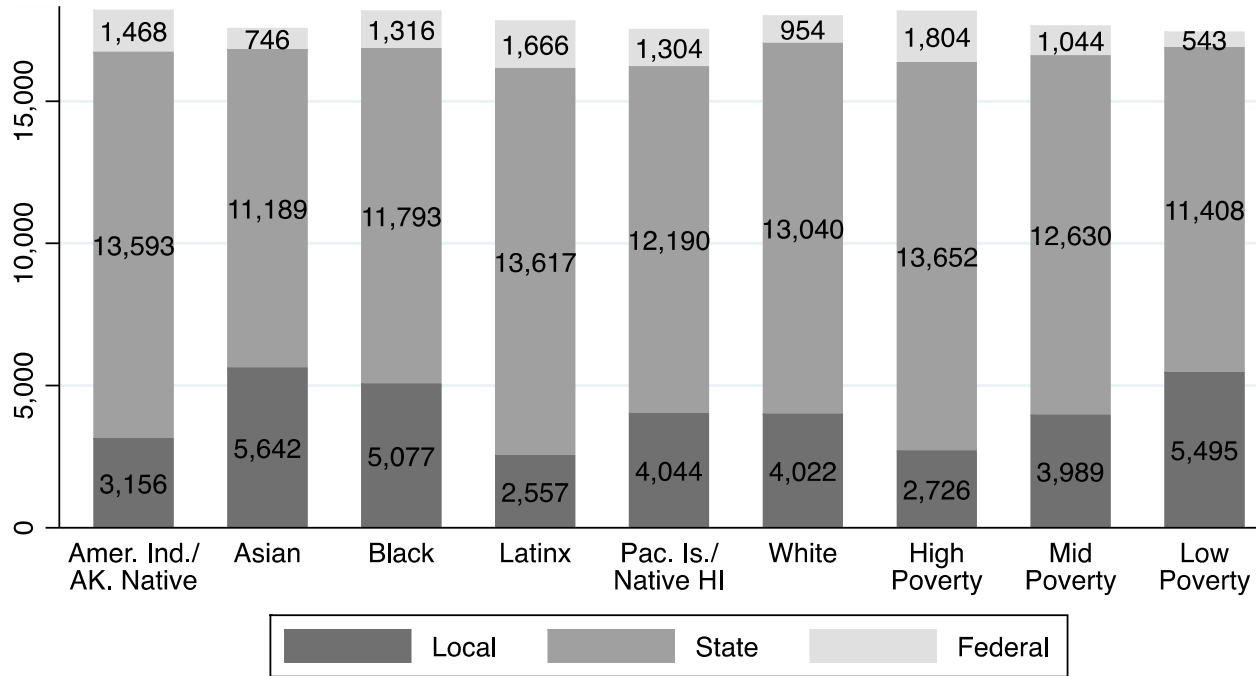
Unadjusted average per-pupil federal, state, and local funding in Washington and all U.S. school districts



Note. The x-axis reflects spring year. Data for Washington from 2014-15 through 2020-21 are drawn from the state’s F-196 finance dataset. All other data are drawn from the National Center for Education Statistics F-33 dataset. Dollar values are not adjusted for differences in geographic cost of labor (Figure 1 in the main text makes these adjustments). Values are adjusted for inflation to 2020-21 academic year.

APPENDIX FIGURE A2

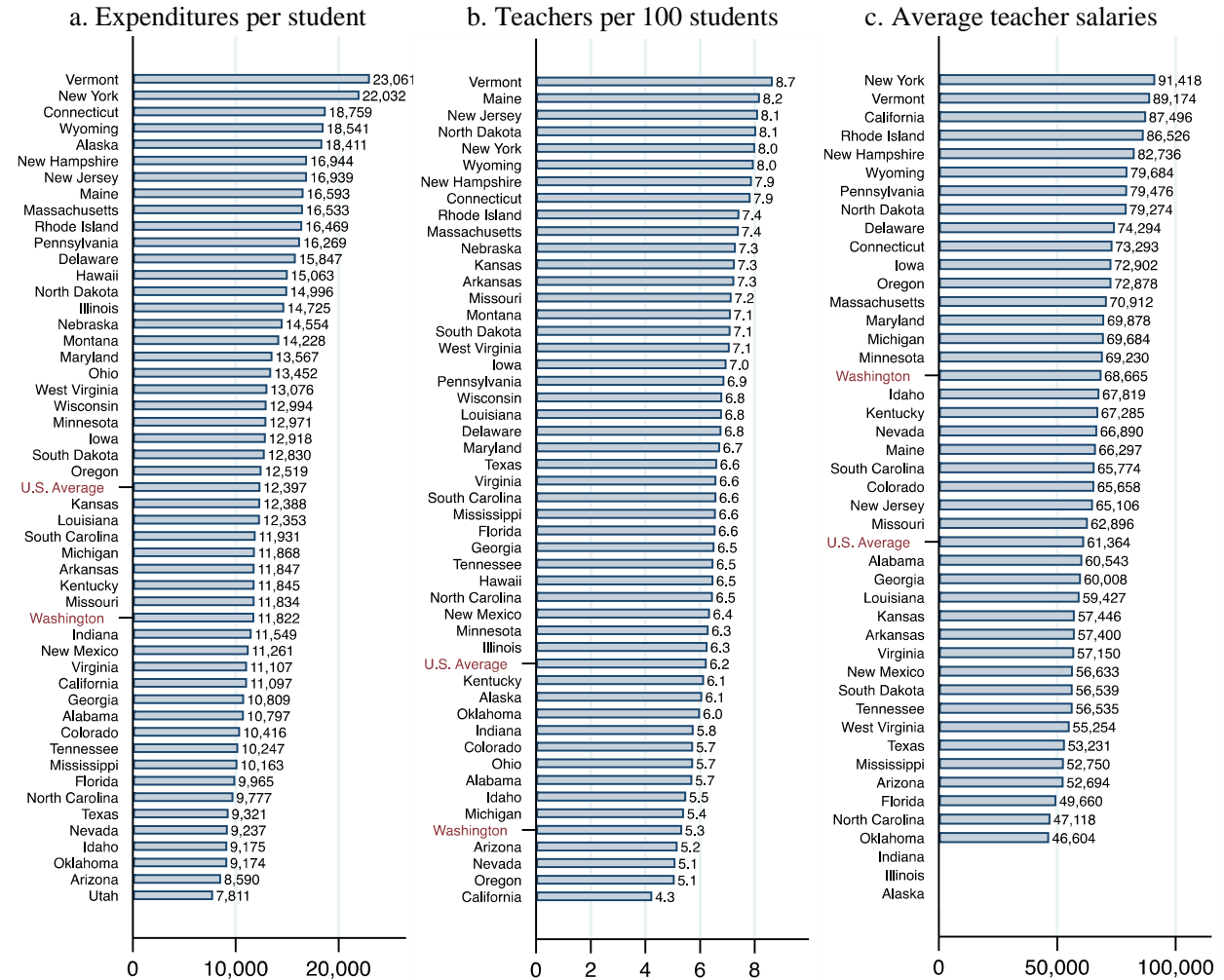
Average federal, state, and local funding for Washington districts in the highest quintile of each student racial/ethnic category and poverty rate, placing an equal number of students within each quintile, 2018-19 to 2020-21



Note. Figure 2 in the main text displays the same data but places an equal number of districts (59) in each quintile, rather than students. Indian / AK Native refers to the federal category American Indian / Alaskan Native. Latinx refers to the federal category Hispanic, non-White. Pac. Is. / Native HI refers to Pacific Islander and Native Hawaiian. Funding rates reflect the average among districts in the highest quintile of each student demographic category, placing an equal number of students (about 225,000) in each quintile. High, mid, and low poverty is based on the highest, middle, and lowest quintile. Averages are weighted by student enrollment and adjusted for inflation (in 2020-21 dollars) and differences in the cost of wages (Taylor, 2006), but not adjusted for any other district characteristic such as district size, urbanicity, or enrollment in special education or bilingual education. *Source:* Office of the Superintendent for Public Instruction, F196 dataset.

APPENDIX FIGURE A3

Average resource levels across states, 2016-17



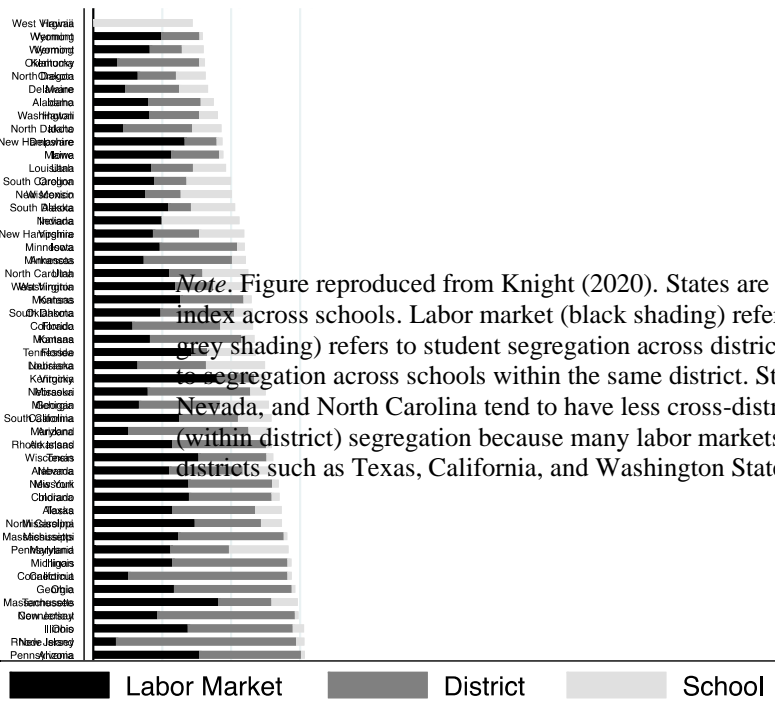
Note. Expenditures and salaries are adjusted for differences in labor costs across districts (measured as the average salaries of non-teachers in the same labor market, see Taylor, 2006). Average teacher salaries reflect both differences in statewide average teacher experience and education level, and differences in salaries of teachers with the same experience and education profile (i.e., differences in salary schedules). Salary data are for school year 2014-15 and data for Indiana, Illinois, and Alaska are not available.

APPENDIX FIGURE A4

Between-school segregation and decomposition, 2015-16

Panel A. Free/Reduced-Price Lunch

Panel B. Underrepresented Students of Color

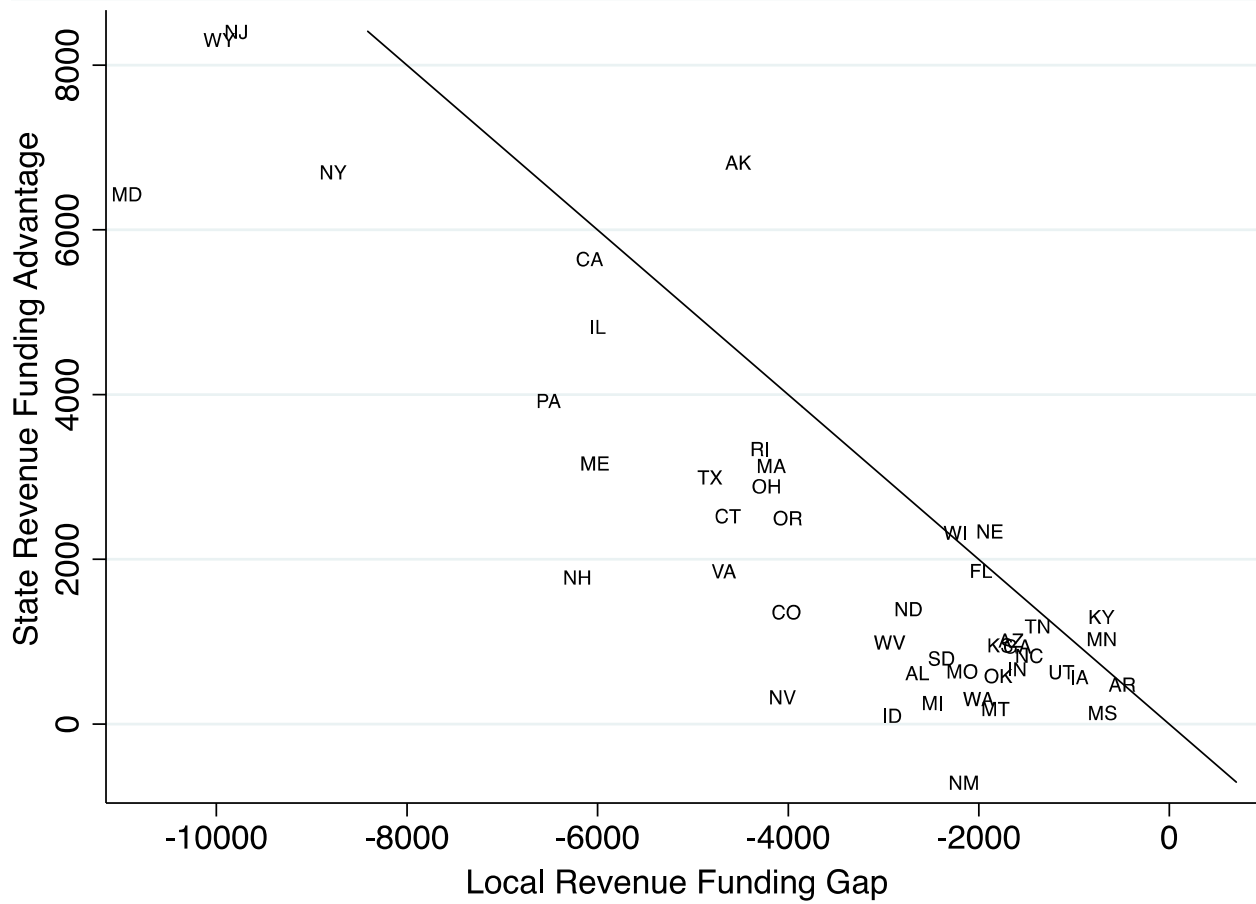


Note. Figure reproduced from Knight (2020). States are ranked by total segregation, measured as the dissimilarity index across schools. Labor market (black shading) refers to student segregation across labor markets. District (dark grey shading) refers to student segregation across districts within the same labor markets. School (light grey) refers to segregation across schools within the same district. States with county-wide school districts such as Florida, Nevada, and North Carolina tend to have less cross-district (within-labor market) segregation, but more cross-school (within district) segregation because many labor markets include only one school district. States with smaller districts such as Texas, California, and Washington State, tend to have larger cross-district segregation.



APPENDIX FIGURE A5

Average difference in funding between high and low-poverty districts, state revenues per student and local revenues per student, 2017-18



Note. For states to the left of the solid line, state funding is not progressive enough to account for the funding gap in local revenues. Local and state funding gaps are based on regression-adjusted estimates of funding for districts at the 10th and 90th percentile of U.S. Census poverty rate. For visual clarity, the graph omits Delaware, Louisiana, South Carolina, and Vermont. Raw data for this graph are shown in Appendix Table A2.

APPENDIX TABLE A1

Average funding rate of state aid programs in Washington, by district poverty rate, 2018-19 to 2020-21

Account code	Revenue category	All	High Pov.	Low Pov.	Diff.	Ratio
13100	General Apportionment	8,552	8,308	8,691	-382	0.96
14121	Special Education - Special purpose	1,241	1,222	1,252	-30	0.98
14199	Transportation Operations	495	401	548	-146	0.73
24130	Special Education - General purpose	271	293	259	33	1.13
13121	Learning Assistance Program	384	623	249	374	2.50
14155	State funds paid directly to districts (Capital proj. fund)	277	347	238	109	1.46
13300	Transitional Bilingual	188	197	183	14	1.08
14165	Local Effort Assistance	315	577	167	410	3.46
24100	Other special purpose (Capital proj. fund)	164	230	126	104	1.83
14158	Special and pilot programs	96	107	89	17	1.20
14122	Special Education - Infants & Toddlers, State	58	51	62	-12	0.81
94499	Transportation - Depreciation (Trans. vehicles fund)	46	40	50	-10	0.79
24300	Highly Capable Program	28	26	29	-3	0.89
14174	State forests revenues from Dept. of Natural Resources	9	1	18	-17	0.06
13600	Other special purpose from non-OSPI (Capital proj. fund)	20	40	9	31	4.32
14156	State Institutions, Centers, & Homes - Delinquent	9	11	8	3	1.40
33600	State forests (Debt service fund)	5	3	6	-2	0.61
14388	School food services	6	9	5	4	1.89
14198	Child care funds from non-OSPI agencies	18	42	4	38	9.63

Note. State revenue categories are based on fund-category-program accounting numbers from the Office of the Superintendent for Public Instruction (OSPI) F-196 school finance data. 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. Funding rates for high and low-poverty districts are based on regression-adjusted estimates. High and low-poverty districts are those at the 10th and 90th percentile of U.S. Census poverty rate in the state. These numbers are displayed graphically in Figure 4.

APPENDIX TABLE A2

Average federal, state, and local funding, by poverty rate, 2017-18

	Federal			State			Local		
	High	Low	Ratio	High	Low	Ratio	High	Low	Ratio
Alabama	\$1,725	\$798	2.16	\$6,365	\$5,739	1.11	\$2,069	\$4,714	0.44
Alaska	\$6,894	\$1,483	4.65	\$16,786	\$9,962	1.68	\$874	\$5,398	0.16
Arizona	\$2,646	\$513	5.16	\$4,450	\$3,428	1.30	\$3,420	\$5,081	0.67
Arkansas	\$1,691	\$860	1.97	\$8,950	\$8,463	1.06	\$1,227	\$1,720	0.71
California	\$1,600	\$570	2.81	\$10,842	\$5,190	2.09	\$2,220	\$8,304	0.27
Colorado	\$1,231	\$597	2.06	\$6,096	\$4,731	1.29	\$3,489	\$7,507	0.46
Connecticut	\$1,073	\$610	1.76	\$9,175	\$6,644	1.38	\$11,859	\$16,492	0.72
Delaware	\$1,499	\$950	1.58	\$8,450	\$13,357	0.63	\$4,277	\$6,464	0.66
Florida	\$1,516	\$1,031	1.47	\$5,453	\$3,586	1.52	\$4,000	\$5,976	0.67
Georgia	\$1,764	\$793	2.23	\$6,324	\$5,374	1.18	\$4,410	\$6,005	0.73
Idaho	\$1,264	\$686	1.84	\$5,944	\$5,836	1.02	\$199	\$3,106	0.06
Illinois	\$1,549	\$536	2.89	\$9,957	\$5,127	1.94	\$6,892	\$12,890	0.53
Indiana	\$1,211	\$615	1.97	\$8,393	\$7,720	1.09	\$3,200	\$4,797	0.67
Iowa	\$941	\$550	1.71	\$7,549	\$6,972	1.08	\$5,614	\$6,558	0.86
Kansas	\$1,233	\$786	1.57	\$9,265	\$8,302	1.12	\$2,742	\$4,516	0.61
Kentucky	\$2,100	\$952	2.21	\$7,843	\$6,535	1.20	\$3,657	\$4,369	0.84
Louisiana	\$2,094	\$1,284	1.63	\$5,522	\$5,282	1.05	\$7,946	\$5,264	1.51
Maine	\$1,348	\$775	1.74	\$7,962	\$4,791	1.66	\$5,465	\$11,492	0.48
Maryland	\$1,492	\$571	2.61	\$11,237	\$4,797	2.34	\$2,956	\$13,896	0.21
Massachusetts	\$1,023	\$717	1.43	\$8,924	\$5,783	1.54	\$10,358	\$14,534	0.71
Michigan	\$1,159	\$331	3.50	\$8,010	\$7,747	1.03	\$3,100	\$5,583	0.56
Minnesota	\$1,078	\$502	2.15	\$10,544	\$9,505	1.11	\$4,066	\$4,774	0.85
Mississippi	\$2,017	\$962	2.10	\$5,110	\$4,966	1.03	\$3,164	\$3,865	0.82
Missouri	\$1,525	\$685	2.23	\$5,635	\$4,988	1.13	\$4,899	\$7,072	0.69
Montana	\$2,825	\$714	3.95	\$5,707	\$5,517	1.03	\$4,771	\$6,596	0.72
Nebraska	\$1,478	\$597	2.48	\$5,982	\$3,636	1.65	\$7,115	\$8,999	0.79
Nevada	\$1,173	\$206	5.68	\$7,043	\$6,711	1.05	\$2,103	\$6,163	0.34
New Hamp.	\$1,439	\$499	2.89	\$6,681	\$4,894	1.37	\$9,359	\$15,572	0.60
New Jersey	\$1,247	\$381	3.27	\$12,697	\$4,286	2.96	\$8,323	\$18,114	0.46
New Mexico	\$2,627	\$880	2.99	\$7,626	\$8,330	0.92	\$997	\$3,152	0.32
New York	\$1,473	\$619	2.38	\$13,344	\$6,638	2.01	\$13,150	\$21,926	0.60
N. Carolina	\$1,644	\$822	2.00	\$6,681	\$5,845	1.14	\$1,725	\$3,195	0.54
North Dakota	\$3,708	\$0	--	\$9,688	\$8,286	1.17	\$4,052	\$6,789	0.60
Ohio	\$1,258	\$572	2.20	\$7,214	\$4,321	1.67	\$6,059	\$10,285	0.59
Oklahoma	\$1,298	\$763	1.70	\$4,735	\$4,143	1.14	\$3,122	\$4,917	0.63
Oregon	\$1,373	\$721	1.90	\$8,967	\$6,460	1.39	\$2,883	\$6,886	0.42
Pennsylvania	\$1,357	\$497	2.73	\$9,457	\$5,527	1.71	\$7,926	\$14,440	0.55
Rhode Island	\$1,309	\$1,123	1.17	\$8,590	\$5,244	1.64	\$8,561	\$12,856	0.67
S. Carolina	\$1,967	\$816	2.41	\$6,414	\$6,356	1.01	\$7,068	\$5,566	1.27
South Dakota	\$4,285	\$25	171.14	\$4,620	\$3,816	1.21	\$4,723	\$7,113	0.66
Tennessee	\$1,389	\$898	1.55	\$5,605	\$4,412	1.27	\$3,479	\$4,860	0.72
Texas	\$1,717	\$721	2.38	\$5,694	\$2,692	2.12	\$4,184	\$9,004	0.46
Utah	\$895	\$618	1.45	\$5,272	\$4,633	1.14	\$2,818	\$3,950	0.71
Vermont	\$1,436	\$1,072	1.34	\$7,336	\$31,576	0.23	\$8,233	\$0	--
Virginia	\$1,488	\$615	2.42	\$6,610	\$4,748	1.39	\$3,843	\$8,519	0.45
Washington	\$1,273	\$656	1.94	\$9,978	\$9,666	1.03	\$3,286	\$5,289	0.62
West Virginia	\$1,731	\$955	1.81	\$7,518	\$6,519	1.15	\$2,617	\$5,551	0.47
Wisconsin	\$1,303	\$572	2.28	\$8,755	\$6,426	1.36	\$4,832	\$7,077	0.68
Wyoming	\$3,114	\$0	--	\$15,868	\$7,556	2.10	\$1,398	\$11,367	0.12
U.S. Average	\$1,607	\$622	2.58	\$8,406	\$5,471	1.54	\$4,911	\$8,290	0.59

Note. Figure 5 displays these numbers graphically for selected states. See text for definition of high / low-poverty.

APPENDIX FIGURE A3

Average funding rate of state aid programs, by district poverty rate, 2017-18

	All U.S. Districts			Washington			California		
	High Pov.	Low Pov.	Ratio	High Pov.	Low Pov.	Ratio	High Pov.	Low Pov.	Ratio
Gen. Form. Assist.	6,495	3,719	1.75	7,078	7,211	0.98	9,094	3,590	2.53
Other Prog.	644	601	1.07	772	516	1.50	1,324	1,097	1.21
On Behalf, Benef.	431	520	0.83	0	0	--	439	455	0.97
Special Edu. Prog.	479	339	1.41	1,231	1,235	1.00	403	215	1.88
Staff Improve. Pr.	137	118	1.15	0	0	--	0	0	-11.61
Cap. Outlay / Debt	156	99	1.57	213	273	0.78	147	48	3.04
Transp. Prog.	100	84	1.20	473	546	0.87	0	0	--
Compens. Prog.	227	57	4.01	633	298	2.12	60	62	0.97
Gifted / Tal. Prog.	24	30	0.78	21	24	0.89	0	0	--
Biling. Edu. Prog.	32	28	1.16	150	144	1.04	0	0	--
Non-specified	37	23	1.62	0	0	--	0	0	--
Voc. Edu. Prog.	29	22	1.33	0	0	--	1	1	0.98
On Behalf, Non-B.	19	14	1.34	0	0	--	0	0	--
Sch. Lunch Prog.	15	10	1.49	11	4	2.59	43	12	3.60
Total	8,825	5,663	1.56	10,582	10,252	1.03	11,511	5,479	2.10

	Massachusetts			Texas			Wisconsin		
	High Pov.	Low Pov.	Ratio	High Pov.	Low Pov.	Ratio	High Pov.	Low Pov.	Ratio
Gen. Form. Assist.	6,620	3,635	1.82	5,396	2,366	2.28	6,791	4,369	1.55
Other Prog.	119	44	2.69	102	79	1.29	934	631	1.48
On Behalf, Benef.	1,570	1,822	0.86	326	333	0.98	0	0	--
Special Edu. Prog.	0	0	--	0	0	--	476	438	1.09
Staff Improve. Pr.	0	0	--	0	0	--	0	0	--
Cap. Outlay / Debt	545	307	1.78	185	53	3.47	0	0	--
Transp. Prog.	345	483	0.71	0	0	--	56	33	1.68
Compens. Prog.	0	0	--	0	0	--	0	0	--
Gifted / Tal. Prog.	0	0	--	0	0	--	0	0	--
Biling. Edu. Prog.	0	0	--	0	0	--	8	13	0.64
Voc. Edu. Prog.	93	107	0.87	0	0	--	0	0	--
Non-specified	5	-1	-6.10	0	0	--	0	0	--
On Behalf, Non-B.	0	0	--	28	15	1.90	0	0	--
Sch. Lunch Prog.	0	0	--	5	6	0.92	11	6	1.99
Total	9,297	6,398	1.45	6,042	2,852	2.12	8,276	5,489	1.51

Note. State revenue categories are based on those included in the U.S. Census Annual Survey of School System Finances, F-33 (Cornman, Ampadu & Hanak, 2020; U.S. Census Bureau, 2020). Figure 8 displays the numbers shown here graphically.

APPENDIX TABLE A4

State and local funding as a percent of total state gross domestic product, 2007-08 to 2018-19

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Rank
Alabama	4.5	4.7	4.4	4.2	3.9	3.9	3.9	3.7	3.8	3.7	3.6	3.6	19
Alaska	4.1	4.9	4.6	4.3	4.0	4.4	4.5	5.2	4.8	4.5	4.2	4.3	2
Arizona	3.5	3.7	3.4	3.1	2.9	2.7	2.8	2.6	2.5	2.5	2.4	2.6	48
Arkansas	4.5	4.9	5.2	5.1	4.6	4.4	4.2	4.3	4.3	4.2	4.1	4.2	6
California	3.5	3.6	3.3	3.1	3.0	2.8	2.8	2.8	2.9	3.0	3.0	3.0	37
Colorado	3.3	3.3	3.3	3.1	2.9	2.8	2.9	2.9	2.9	2.9	3.0	3.0	40
Connecticut	3.4	3.6	3.6	3.5	3.5	3.5	3.6	3.5	3.5	3.4	3.5	3.5	23
Delaware	3.1	3.0	2.9	2.9	3.0	3.0	2.8	2.6	2.8	2.9	2.8	2.9	41
Florida	4.1	3.9	3.6	3.5	3.2	3.1	3.1	3.0	2.9	2.9	2.8	2.8	47
Georgia	4.5	4.6	4.2	3.9	3.9	3.7	3.6	3.5	3.5	3.5	3.4	3.5	26
Hawaii	3.4	3.6	3.1	2.7	2.5	2.5	2.7	2.4	2.5	2.3	2.4	2.5	49
Idaho	3.5	3.7	3.7	3.4	3.2	3.1	3.1	3.0	3.0	3.0	3.0	3.0	39
Illinois	3.5	3.8	3.7	3.6	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.3	31
Indiana	3.5	3.8	3.6	3.4	3.3	3.1	3.0	3.0	3.0	3.0	2.9	3.1	36
Iowa	3.8	4.0	4.0	3.9	3.7	3.7	3.6	3.6	3.7	3.7	3.6	3.6	15
Kansas	3.7	4.4	4.3	3.9	3.6	3.6	3.7	3.7	3.5	3.7	3.7	3.8	12
Kentucky	4.0	4.0	4.0	4.0	3.9	3.8	3.6	3.6	3.6	3.7	3.6	3.6	22
Louisiana	3.5	3.8	3.6	3.6	3.5	3.3	3.2	3.4	3.5	3.4	3.2	3.1	35
Maine	4.6	4.7	4.6	4.7	4.4	4.2	4.1	4.1	4.1	4.2	4.2	4.1	7
Maryland	3.9	3.9	3.8	3.7	3.6	3.6	3.6	3.4	3.3	3.4	3.4	3.4	27
Mass.	3.2	3.3	3.2	3.1	3.3	3.2	3.2	3.1	3.0	3.0	2.9	2.8	43
Michigan	4.7	4.9	4.6	4.4	4.1	3.8	3.6	3.5	3.5	3.5	3.5	3.5	25
Minnesota	3.7	4.0	3.6	3.5	3.4	3.4	3.3	3.4	3.6	3.7	3.6	3.6	21
Mississippi	4.4	4.8	4.7	4.4	4.4	4.2	4.3	4.2	4.3	4.2	4.0	4.0	8
Missouri	3.8	3.9	3.8	3.6	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.4	28
Montana	4.2	4.4	4.2	4.0	3.8	3.8	3.9	3.8	4.0	3.9	4.0	3.6	20
Nebraska	3.7	3.9	3.9	3.6	3.7	3.6	3.5	3.6	3.9	3.9	3.8	3.6	17
Nevada	3.6	3.5	3.2	3.2	3.0	2.9	3.0	2.9	2.8	2.9	2.8	2.8	45
New Hamp.	4.1	4.1	4.1	4.2	4.1	3.9	3.8	3.8	3.7	3.7	3.6	3.7	14
New Jersey	4.9	5.1	5.0	4.7	4.6	4.6	4.8	4.6	4.6	4.6	4.5	4.5	1
New Mex.	4.3	4.7	4.5	4.2	4.0	3.9	3.8	4.1	4.0	3.9	3.6	3.6	16
New York	4.6	4.7	4.6	4.5	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.2	5
N. Carolina	3.3	3.5	3.3	3.1	3.0	2.9	2.8	2.8	2.7	2.8	2.7	2.8	46
N. Dakota	3.2	3.3	3.3	3.0	2.5	2.7	2.6	3.1	3.7	3.4	3.2	3.2	34
Ohio	4.3	4.5	4.4	4.2	4.1	3.8	3.6	3.7	3.7	3.8	3.7	3.8	13
Oklahoma	3.5	4.0	3.9	3.3	3.2	3.1	3.1	3.2	3.3	3.1	3.0	3.3	29
Oregon	3.7	4.0	3.7	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.6	18
Penn.	4.1	4.2	4.1	4.0	3.8	3.9	3.8	3.8	3.9	4.0	3.9	3.9	11
Rhode Is.	4.6	4.5	4.4	4.4	4.3	4.3	4.2	4.1	4.2	4.3	4.3	4.3	3
S. Carolina	4.9	5.1	4.8	4.5	4.3	4.2	4.1	4.0	4.0	4.0	4.0	3.9	9
S. Dakota	3.1	3.3	3.3	3.1	2.9	2.9	2.8	3.0	2.9	3.0	3.0	2.9	42
Tennessee	3.3	3.5	3.4	3.4	3.2	3.0	3.0	2.8	2.8	2.8	2.8	2.8	44
Texas	3.7	4.1	3.9	3.5	3.2	3.0	3.0	3.2	3.4	3.4	3.2	3.2	33
Utah	3.7	3.8	3.4	3.3	3.3	3.3	3.0	3.0	3.1	3.1	3.0	3.0	38
Vermont	5.4	5.5	5.4	5.2	5.1	5.3	5.2	5.2	5.1	5.2	0.0	0.0	50
Virginia	3.8	3.6	3.5	3.4	3.4	3.4	3.5	3.4	3.3	3.4	3.3	3.3	30
Washington	3.2	3.3	3.1	3.0	2.9	2.8	2.8	2.8	3.0	3.0	3.1	3.2	32
W. Virginia	4.5	4.6	4.9	4.8	4.6	4.5	4.4	4.4	4.4	4.3	3.9	3.9	10
Wisconsin	4.1	4.2	4.2	4.1	3.7	3.6	3.6	3.5	3.5	3.5	3.6	3.5	24
Wyoming	3.5	4.6	4.5	4.2	4.3	4.3	4.5	5.1	5.6	5.1	4.3	4.2	4

Note. Rank is for 2019 value. *Source:* Baker et al., 2022

APPENDIX TABLE A5

Student segregation by state, decomposed by region, district, and school, 2015-16

State	Income-based segregation				Race/ethnicity-based segregation			
	Diss. Index	Btw. labor mkt.	Within labor mkt. (btw. dist.)	Within school district	Diss. Index	Bet. labor mkt.	Within labor mkt. (btw. dist.)	Within school district
West Virginia	0.185	36%	13%	51%	0.452	52%	24%	23%
Wyoming	0.262	34%	20%	45%	0.320	51%	29%	20%
Vermont	0.282	43%	53%	4%	0.318	62%	35%	3%
Kentucky	0.292	40%	25%	35%	0.499	71%	22%	6%
North Dakota	0.306	21%	45%	33%	0.372	23%	54%	23%
Maine	0.309	52%	42%	7%	0.377	60%	37%	3%
Alabama	0.313	44%	22%	34%	0.525	42%	41%	17%
Hawaii	0.322	0%	0%	100%	0.288	0%	0%	100%
Idaho	0.331	28%	45%	27%	0.350	45%	44%	11%
Delaware	0.339	9%	63%	28%	0.333	28%	47%	25%
Iowa	0.354	27%	63%	10%	0.439	44%	51%	5%
Louisiana	0.356	32%	31%	37%	0.498	26%	40%	34%
Oregon	0.364	43%	29%	29%	0.326	39%	34%	26%
Wisconsin	0.371	26%	60%	14%	0.522	58%	38%	4%
South Dakota	0.372	38%	33%	29%	0.463	42%	46%	12%
Indiana	0.373	23%	64%	13%	0.541	51%	44%	4%
New Hamp.	0.374	39%	56%	5%	0.375	71%	25%	4%
Minnesota	0.379	19%	64%	17%	0.443	33%	58%	9%
Arkansas	0.382	39%	42%	20%	0.518	44%	52%	3%
Utah	0.386	38%	32%	29%	0.385	44%	31%	25%
Washington	0.392	45%	33%	22%	0.362	45%	40%	15%
Kansas	0.400	42%	48%	10%	0.468	35%	57%	8%
Oklahoma	0.402	25%	59%	15%	0.324	21%	73%	5%
Florida	0.405	29%	6%	65%	0.471	60%	10%	30%
Montana	0.410	37%	47%	16%	0.459	55%	40%	5%
Tennessee	0.412	41%	30%	29%	0.593	61%	26%	13%
Nebraska	0.419	16%	63%	21%	0.500	32%	59%	9%
Virginia	0.424	41%	26%	33%	0.438	39%	31%	30%
Missouri	0.424	33%	57%	10%	0.538	51%	45%	4%
Michigan	0.428	41%	52%	7%	0.575	40%	58%	2%
S. Carolina	0.463	46%	24%	30%	0.400	44%	23%	32%
Maryland	0.470	25%	41%	33%	0.566	39%	30%	31%
Rhode Island	0.476	9%	83%	8%	0.613	11%	85%	4%
Texas	0.479	27%	53%	20%	0.547	42%	44%	14%
Nevada	0.481	37%	0%	62%	0.424	47%	0%	53%
New York	0.484	53%	38%	9%	0.634	61%	31%	9%
Colorado	0.486	17%	56%	26%	0.464	24%	55%	21%
Alaska	0.490	24%	27%	49%	0.412	53%	16%	31%
N. Carolina	0.492	44%	17%	39%	0.450	49%	22%	30%
Mississippi	0.497	46%	44%	10%	0.548	54%	35%	11%
Pennsylvania	0.498	22%	74%	4%	0.614	50%	48%	2%
Illinois	0.511	18%	73%	9%	0.612	45%	50%	5%
California	0.519	43%	34%	23%	0.517	48%	33%	19%
Georgia	0.520	37%	32%	31%	0.510	26%	46%	28%
Mass.	0.523	37%	61%	2%	0.563	44%	54%	2%
Connecticut	0.527	15%	81%	4%	0.576	18%	80%	2%
Ohio	0.528	17%	65%	18%	0.586	40%	58%	2%
New Jersey	0.552	23%	74%	3%	0.595	31%	67%	2%
Arizona	0.590	13%	70%	16%	0.518	20%	67%	13%
New Mexico	0.603	35%	20%	45%	0.402	37%	26%	37%

Note. Table reproduced from Knight (2020). States are ranked by the amount of income-based student segregation across schools. Income and racial/ethnic segregation are correlated at 0.53 and rank values are correlated at 0.57.

Appendix B: Data and Analytic approach

Data

We draw on data from the National Center for Education Statistics (NCES) F-33 school finance survey, the NCES Common Core of Data, U.S. Census Bureau Small Area Income and Poverty Estimates, the cost of wage index (Taylor, 2006), and the Washington Office of the Superintendent for Public Instruction F-196 school district finance survey. These raw datasets contain all U.S. local education agencies (LEAs), including county offices of education, juvenile detention centers, districts in outlying states and territories, and other non-traditional LEAs. We focus on LEAs that are school districts, defined as an LEA that enrolls students and has non-zero revenues and expenditures (see Cornman et al., 2020 for additional detail on the F-33 school finance survey). We exclude districts with non-reported enrollment, revenue, or expenditure data, charter school districts, and districts that do not report the percent of students enrolled in special education or classified as English learners. For districts that do not report special education or English learner data but report these data in the prior or subsequent year, we impute one year forward or backward. Our findings are similar with or without this imputation and our results are generally robust to different model specifications as discussed below. Our full dataset includes 323,663 district-year observations from 1994-95 to 2017-18, an average of 13,486 districts per year and 12,810 in 2017-18. Data from Washington include 295 school districts up to the 2020-21 school year.

Methods

We use a regression-based technique to make comparisons of funding across school districts. Our analysis focuses primarily on funding differences among districts serving high and low concentrations of students in poverty. In addition to serving a different student population, these districts differ in other important ways that affect the cost of education. The goal of our regression model, then, is to compare high and low-poverty districts with similar cost factors (Toutkoushian & Michael, 2007). Education cost function analyses (e.g., Duncombe & Yinger, 2007; 2011) identify specific district characteristics associated with differences in the cost of education, including district size, urbanicity, the local cost of labor, and the percent of students enrolled in special education and classified as English learners (Baker, Green & Ramsey, 2018). These studies find school districts benefit from economies of scale until approximately 2,000 students, while operating a school district that serves fewer than 500 students is especially costly. We including dummy variables indicating whether the district serves fewer than 500 students or between 500 and 1,999 students and use as the reference group districts serving at least 2,000 students. Estimation of the cost of labor is based on the mean salary of college-educated non-teachers within a district's local labor market (Taylor, 2006).

We estimate the following model separately for each year in the dataset:

$$Y_d = \beta_0 + \beta_1 \% Poverty_d + X_d'\lambda + \varphi_s + \varepsilon_d \quad (1),$$

where Y_d represents a per-student funding variable, such as state funding per student. The model includes state fixed effects, ϕ_s , which allow us to compare school districts in the same state. The vector X includes the control variables, listed above. The coefficient β_1 provides an estimate of the relationship between poverty rate and funding within states, holding constant other district characteristics. In our preferred models, we estimate poverty rate as the district's poverty rate percentile within the state, where the state's highest-poverty district has a poverty rate percentile of 1. We use Stata's margins commands to estimate the predicted funding rate for districts at the 10th and 90th percentile of poverty within the state. Our results are similar when we (a) use the actual poverty rate (where most districts fall between 0 to 40 percent children in poverty) instead of poverty percentile, (b) use the percent of students eligible for free/reduced price meals, (c) exclude controls for the percent of students enrolled in special education and classified as English learners, (d) exchange state fixed effects with labor market fixed effects, or (e) run the model on a stacked dataset with year fixed effects and interact year dummy variables with all other variables in the model (i.e., a fully-interacted model). For state-specific estimates, we fit the model separately for individual states. Additional information about this methodology is included in Baker et al. (2019) and Knight and Mendoza (2019).

‘

Endnotes

ⁱ *Mathew and Stephanie McCleary et al., v. State of Washington* (2012), 269 P.3d 227. (Wash.) 269 P.3d 227, 173 Wash. 2d 477

ⁱⁱ Taylor (2006) estimates differences in the local cost of labor for all geographic labor markets in the country. The model creates an index that exceed one for geographic labor markets where college educated workers in a set of non-teacher occupations (e.g., nurses, analysts, sales positions, etc.) earn wages that exceed the national average for those occupations. The index is below one for labor markets in which college educated non-teachers earn less than the national average. By dividing expenditure and revenues by this index, we control for differences in the cost of hiring educators of a given experience and education level.

ⁱⁱⁱ Figure 3 uses regression to adjust for student characteristics, allowing for comparisons between high- and low-poverty school districts with otherwise similar characteristics. The appendix includes additional information on research methods.

^{iv} As described Appendix B, we estimate funding for high and low-poverty districts based on a regression model. The model predicts state funding per student based on each district poverty percentile in the state and a set of control variables that adjust for differences in cost, including the percent of students in the district enrolled in special education or identified as English learners, district urbanicity and enrollment size, and an index that captures the local cost of labor, measured as the average salary of college-educated non-teachers in the local labor market.

^v We use funding account and program interchangeably to refer to a specific pot of K-12 state funding that OSPI assigns a five-digit accounting number and includes in the state's F-196 financial data (representing unique fund-category-programs codes). We use the term "funding category" to refer to the pots of state funding included in the federal NCES U.S. Education Department data.

^{vi} The U.S. Census Annual Survey of School System Finances is the only existing source for finance data for all school districts nationally. These data disaggregate state funding into 15 categories, including the nine categories shown in Figure 3 as well as Staff Improvement Programs (variable c04), Vocational Education Programs (c09), Miscategorized Items (c24), Non-specified (c35), State Payments on Behalf – Benefits (c38), and State Payments on Behalf – Non-benefits (c39). We exclude these other six categories because many districts, including every district in Washington, report zero funding for these categories. See Appendix B for more information about our data and analytic approach.

^{vii} Documentation for the NCES finance data notes that other programs can include "instructional materials, textbooks, computer equipment, library resources, guidance and psychological services, driver education, energy conservation, enrollment increases and losses, health, alcohol and drug abuse, AIDS, child abuse, summer school, prekindergarten and early childhood, adult education (excluding vocational), desegregation, private schools, safety and law enforcement, and community services" (Cornman, p. B-9), and other state aid programs not included in the general formula.

^{viii} Engrossed House Bill 2242, Part I Salary Allocations, Sec. 101, (9), Lines 14-17, page 4.