Lessons Learned: Weighted Student Funding

October 2020

Over the last two decades, some of the nation's largest districts, including those in New York City, Boston, Denver, Houston, and Chicago, have shifted to using a weighted student funding (WSF) formula to distribute some portion of their total budget. Instead of allocating resources based on instructional delivery models or doling out staff positions to schools based on staffing formulas, these districts use a *student-based formula* to allocate *dollars* in fixed increments based on the number and types of students in each school. In these models, each defined student type—such as students living in poverty or with limited English proficiency—generates additional dollars on top of a "base" fixed-dollar per-pupil sum for all students. Districts' cited goals for WSF include greater spending equity, transparency, flexibility, and school-level autonomy to focus on improving student outcomes.

Today, an estimated 10% of the nation's K-12 students are served in school systems using WSF. Notably, in 2018, the year following the start of our study, three big districts adopted WSF: Nevada's Clark County (including Las Vegas), Tennessee's Shelby County (including Memphis), and Atlanta. Yet little research has comprehensively mapped what the WSF systems look like and how effective they are in meeting their stated goals—until now.

Our three-year U.S. Department of Education-funded research study analyzes the use of WSF at the district and state level. In 19 districts using WSF in 2017-18, we document WSF designs and features (such as what student types districts weight and what share of their total dollars is distributed through the formula) and how WSF is implemented in those districts and their schools. Surveys of 639 principals in 14 of the study districts provide further implementation insights. We also study the links between WSF and greater resource equity by examining spending and staff allocations in 18 of the WSF districts and a comparison group of non-WSF peer districts. Additionally, we examine how outcomes in districts using WSF in 2009-2016 compared to overall outcomes in their respective states and whether achievement gaps narrowed in the WSF districts.[1]

Our study focuses on these key research questions:

- Why do districts adopt WSF?
- Is there a typical WSF model that districts are using?
- Do WSF districts spend more on at-risk students?
- Are principals taking a financial leadership role in WSF districts?
- What about outcomes? Are achievement gaps narrowing in WSF districts?

For current WSF district leaders and those considering it, this research can help them learn from what peer systems are doing as they seek how best to deploy their dollars to improve student outcomes.

Study Districts

Baltimore City School District
Boston Public Schools (P)
Chicago Public Schools
Cleveland Metropolitan School District (P)
Denver Public Schools (P)
Douglas County School District (P)
Hawaii Department of Education (P)
Houston Independent School District (P)
Indianapolis Public Schools
Jefferson County School District (P)
Metropolitan Nashville Public Schools (P)
Milwaukee Public Schools
New York City Department of Education (P)
Newark Public Schools
Norwalk Public Schools (P)
Orleans Parish School Board (P)
Prince George's County Public Schools (P)
San Francisco Unified School District (P)
Springfield Empowerment Zone* (P)

P=Included in principal survey

** Excluded from equity and outcomes analyses since it is a small set of autonomous schools within the district.*

1. Full research methodologies are forthcoming in journal articles in *Public Budgeting & Finance* and *Peabody Journal of Education*.

Examining more than 70 measures of formula features and implementation practices, we find variation is the norm. Homegrown formulas, non-formula allocations, and exemptions reflect local context and lead to substantial differences in how WSF is implemented across districts.

Why do districts adopt WSF?

Our study of school board and budget documents indicates that **nearly all districts identify equity (89%) and flexibility for school principals (79%) as a key rationale for WSF**, with nearly half also citing a goal of transparency (49%). Although much of the literature links WSF and "school choice" (whereby families choose their school), not one district in our 19-district study cited choice as a driving factor for using WSF.

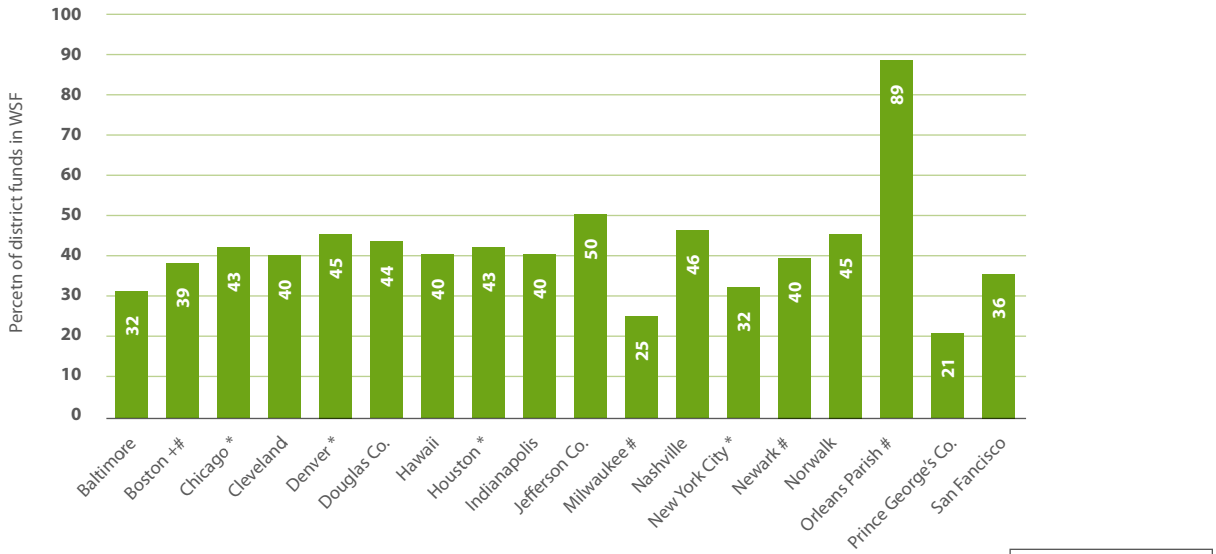
Is there a typical WSF model that districts are using?

Each district has developed a home-grown formula—and district-by-district differences are driven by local context. In examining both the formula amounts, weights, and formula exemptions, we find that many districts are layering their WSF formulas on top of longstanding allocations that reflect local context. In other words: **There's no such thing as the "typical" WSF model.**

Even the portion of the district's budget included in the formula differs. For example, on one end of the spectrum, Prince George's County deploys only 20% of its total budget via its WSF formula, while Orleans Parish deploys 89%.

Most districts use a hybrid approach, deploying some 30%–50% of their total funds via their WSF formula. Non-formula allocations tend to be made for central or shared functions, magnet or small school subsidies, or allocations to exempted schools or programs.

Figure 1: Just One District Allocates More Than 50 Percent of Total District Funds Via WSF



Note: We did not create a comparable %SBA metric or base amount as a percent of PPE for Springfield Empowerment Zone as it is a subset of district schools.

+ includes preK
# includes charters
* FY2017

In addition to defining their "base" allocations differently (the fixed-dollar amount allocated for every student regardless of student characteristics) districts vary on what student characteristics they weight and the size of those weights. Grade level is the most commonly used student weight category across districts, but which level of schooling warrants the highest weight is not consistent. Seven districts give their highest grade-level weight to elementary students, four give it to middle-school students, and four give it to high schoolers.

Two-thirds of districts use weights for students identified as English Learners (ELs) and as having disabilities, while half use weights for poverty, such as free or reduced-priced lunch (FRL). Even the magnitude of the weights differs, with EL weights ranging from 10%–70%. We also find a range of unique, district-designed student weights to meet locally identified needs. Boston, for example, uses a weight for students with interrupted formal learning. Houston uses a weight for students who are refugees. Denver and Houston include students in foster care via the poverty weights listed in Figure 2. Note that no district included federal funds, such as Title I, in their weights, so these weights reflect only state and local resources.

Figure 2: WSF Formulas Vary Across Districts in Both the Types and Number of Weights Used

	Grade level	English language learner	Special education	Poverty	Low academic performance	Gifted	Vocational	Interrupted formal education	High academic performance	Homeless	Refugee
Baltimore			●		●				●		
Boston	●	●	●	●	●		●	●			
Chicago	●		●								
Cleveland	●	●	●		●			●	●		
Denver		●		●		●					
Douglas Co.	●			●	●	●					
Hawaii	●	●		●		●					
Houston	●	●	●	●		●	●			●	●
Indianapolis	●		●	●							
Jefferson Co.	●			●							
Milwaukee	●										
Nashville	●	●	●	●	●						
New York City	●	●	●	●	●		●	●			
Newark	●	●	●								
Norwalk	●										
Orleans Parish	●	●	●			●					
Prince George's Co.	●	●									
San Francisco	●	●	●	●							
Springfield Emp. Zn.	●	●	●	●			●				
Total Number of Districts Using	**17**	**12**	**12**	**11**	**6**	**5**	**4**	**3**	**2**	**1**	**1**
Percent of Districts Using	**89%**	**63%**	**63%**	**57%**	**32%**	**26%**	**21%**	**16%**	**11%**	**5%**	**5%**

Allocations to central or shared functions were typically not included in the weighted student formula. But while the weighted formula tended to be the primary driver of allocations to schools, some allocations weren't driven by student or student type. We find that **these other (non-WSF) allocations tended to reflect local context.** Extra allotments above the student-based formula included those for small school size, magnets, and foundation amounts. While some of these were driven by a formula, we didn't consider them as part of the student-driven formula since the allocations were made on the basis of *school* (versus *student*) characteristics. And some districts exempt some schools from the formula, grant weights for school types (versus student types), or fund select staff positions outside the formula. Clearly, it is difficult for most districts to deploy a strict formula without substantial redistribution. And these exemptions and adjustments effectively mitigate the formula's year-to-year financial effects on some schools.

We also find that **nearly all districts continue to use average salaries in school budgeting, likely limiting their goals for equity.** In this practice, schools are charged for their teaching staff based on district-wide average salaries, not the actual salaries of teachers in the building. This can financially penalize higher-need schools as research suggests that less experienced, lower-salary teachers tend to congregate in those schools. Districts in Boston and Denver have experimented with limited use of real salaries (allowing for roughly one-third of their schools to budget and account for spending based on actual salaries). Both the formula exceptions and continued reliance on average salaries may be limiting the extent to which WSF aids progress toward equitable distribution of resources.

Spending analyses indicate that WSF districts are living up to their equity promises to drive more dollars to low-income and low-performing schools.

Do WSF districts spend more on at-risk students?

Specifically, do WSF spend more at schools attended by low-income students and at the lowest-performing 5% of schools?

To explore whether districts were spending more on schools attended by low-income students, we compared the per-pupil allocations for each school attended by every low-income student to the per-pupil allocations for every non-low-income student. We averaged these allocations in each WSF district. **Nearly all WSF districts do spend more on average on schools attended by low-income students** than on schools attended by non-low-income students. **Schools attended by the average low-income student received more dollars in 16 of 18 (89%) WSF districts.** Similarly, an examination of teacher-student ratios indicated that **in WSF districts low-income students attend schools with more teachers** than do their non-low-income peers (see Figure 3).

In running the same analysis on 18 matched non-WSF districts, we found again that most, albeit a slightly smaller share, did spend more on schools attended by the average low-income student (15 of 18; 83%). While fewer of the non-WSF districts were spending more on low-income students' schools, where they did, the magnitude of that difference was higher (WSF districts were spending $293 more per-low-income pupil compared to $532 in comparison districts).

These patterns suggest that WSF districts do tend to live up to the promise of driving more dollars to higher-poverty schools (and yet, use of WSF is not a perfect guarantee of higher spending). Many of our match districts were also driving more dollars to higher-poverty schools.

Do WSF districts spend more on the lowest-performing 5% of schools? We compared district allocations for the 5% of lowest-performing elementary schools to the rest of the schools. Here we find that **the lowest-performing schools receive more dollars per pupil in 16 of 18 (89%) WSF districts and higher counts of teachers** (see Figure 3). A smaller majority of comparison districts (11 of 18; 61%) also spend more on their lowest-performing schools and have higher teacher-student ratios. Regarding the magnitude of additional dollars spent on low-performing schools, we find WSF districts spend $839 more per-pupil on their average low-performing schools compared to just $546 more in comparison districts (see Table 1).

Figure 3: At-risk students are more likely to have additional dollars and teachers in WSF districts than comparison districts

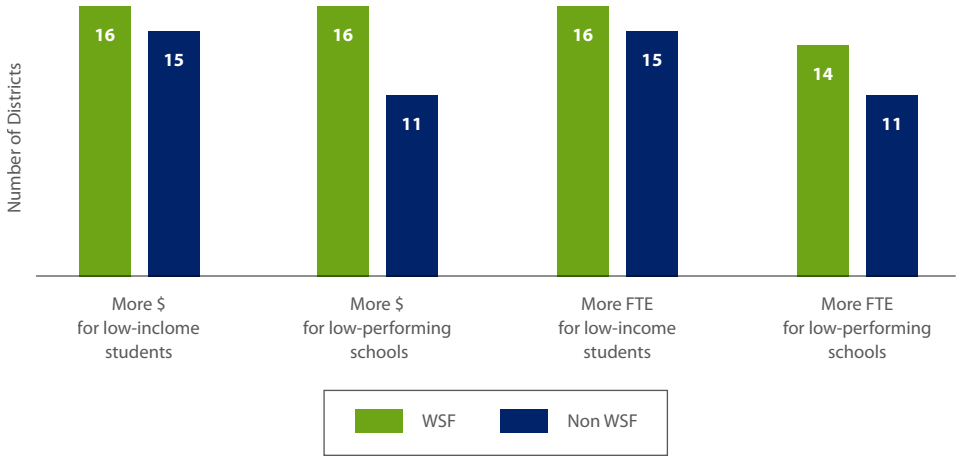


Table 1: The additional dollars and teachers for low-performing schools is greater in WSF than comparison districts; the opposite is true for low-income students

	WSF ($/FTE)	WSF (%)	Comparison ($/FTE)	Comparison (%)
More $ per pupil for low-income students	$293	2.50%	$532	4.07%
More $ per pupil for low-performing schools	$839	6.53%	$546	4.64%
More FTE for low-income students	0.24	3.78%	0.28	4.32%
More FTE for low-performing schools	0.51	7.81%	0.23	2.72%

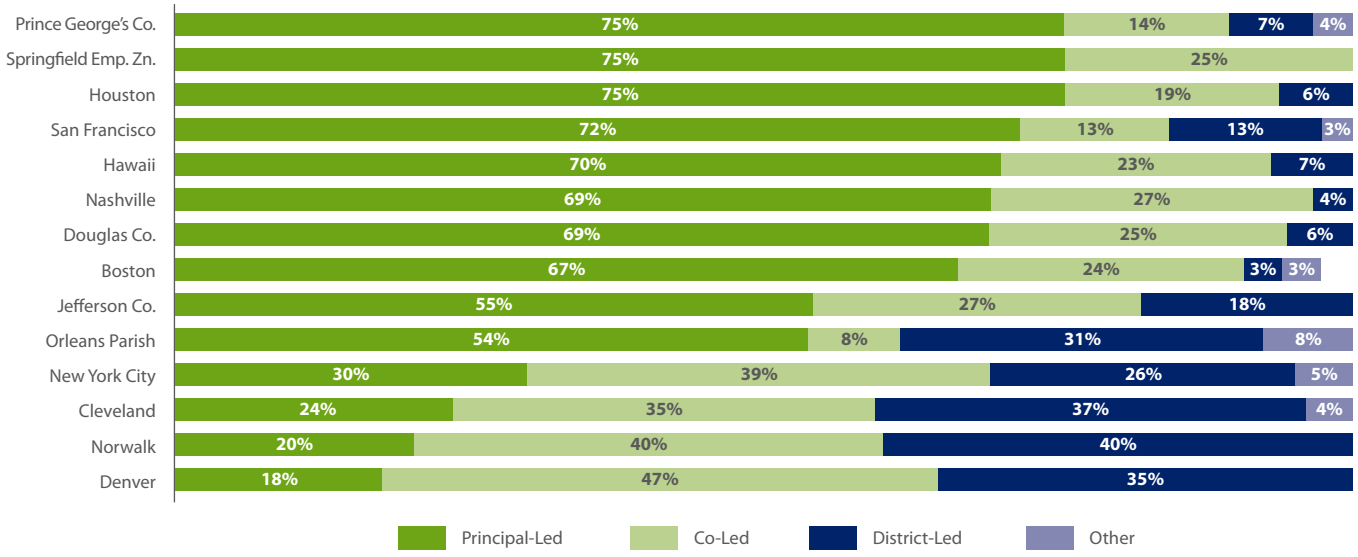
Anecdotally, we find that WSF districts become more equitable over time. And we found **the most equitable districts have used WSF for a decade or more.** Analyzing resource allocation patterns in a recent WSF adopter (1-3 years), a mid-range adopter (4-10 years), and a veteran WSF district (10+ years) showed those districts generally were growing more equitable over time. Anecdotal evidence suggests districts may be refining their formulas to better distribute resources in a way that aligns with their equity goals, but doing so in a way that minimizes any larger single-year redistributions. The only districts that did not allocate more dollars to low-income students were in their first and second years of WSF implementation.

Principals in WSF districts are active financial leaders.

Are principals taking a financial leadership role in WSF districts?

Most WSF principals are actively making budget decisions for their schools—and involving others who are typically left out of the budget process, like teachers and parents. In our survey, 79% of principals reported leading or co-leading the budget process; 87% involve teachers; and 71% include parents. Here again, WSF districts appear to be living up to their goals of increasing school-level autonomy, at least when it comes to involving school-level stakeholders in the budget decisions.

Figure 4: Majority of principals lead or co-lead budget development in WSF districts



**Boston does not add up to 100% because one respondent did not answer this question.*

Most principals understand the rationale for and workings of WSF. Across all responding principals, 40% cited equity/resources and 39% cited ownership/flexibility as the district's rationale for WSF implementation. As to understanding how WSF works, 61% of principals reported correctly that increasing enrollment was a strategy to increase funding at their schools. This finding indicates that these WSF principals understand that enrollment is the primary driver of funds for their schools. Recognizing the rationale for and workings of WSF is a necessary pre-condition if districts are to realize their goals for greater school-level budget autonomy.

Most principals are using their budget flexibilities and customizing spending to better meet their students' needs. Across all responding principals, 82% reported making the decision to apply flexible funds to increase the number of teachers in their schools; 76% reported increasing the number of support staff; and 62% reported changing the staff mix. In addition, 78% reported reallocating money across spending categories (such as shifting funding from staff positions to afterschool programming), suggesting that most principals are making budget tradeoffs between staff and other resources. These responses suggest that not only are principals making choices, they are using their budgetary flexibilities to make *different* choices depending on the school.

That said, survey comments suggest that while districts are granting schools new flexibilities in resource use, some principals reported bumping up against longstanding arrangements for things like base compensation, even in right-to-work states where such issues (at least theoretically) would be expected to be less fixed than in places where collectively bargained labor contracts are the norm. Further, district arrangements for centrally managed services limit the portion of dollars given to schools. **Ultimately, these conditions impact the net flexibility school leaders gain when switching to a WSF formula.**

While WSF principals are expected to be financial leaders, most aren't trained as such in their certification programs, forcing districts to pick up the slack. When asked about their participation in formal financial training opportunities for their role in financial decisionmaking, principals indicated that they are learning on the job. Some 63% said they received financial training (in WSF or budgeting generally) from their current district, while fewer than

half said they received financial training in their certification program. In fact, one in ten principals cited their time as an assistant principal or other mentorship opportunities as their source of financial training. This means that most principals in WSF systems are not prepared to hit the ground running on finance leadership and are instead learning on the job.

Few opportunities exist for financial leadership training in principal preparation and certification programs. Our related research finds that although there are university programs that teach some education finance topics and credentialing standards around budget and resource allocation[2], there seems to be ample latitude for curricular components to satisfy those broad standards and yet leave practitioners without the hands-on finance skills they say they need in their jobs to make strategic financial decisions and tradeoffs on behalf of students.

For WSF districts, these findings suggest that, absent changes to principal preparation, districts may have to deliver training to build financial skills for principals to fully participate in WSF.

Table 2: Principals' training opportunities vary across WSF districts

District	Training from district in WSF	Training from district on budgeting	Training in Principal Certification	Other
Boston	79%	58%	52%	9%
Cleveland	65%	30%	31%	7%
Denver	78%	55%	59%	4%
Douglas Co.	73%	43%	45%	12%
Hawaii	77%	49%	70%	5%
Houston	71%	88%	58%	6%
Jefferson Co.	73%	64%	64%	18%
Nashville	78%	87%	17%	0%
New York City	45%	68%	44%	14%
Norwalk	80%	0%	20%	0%
Orleans Parish	23%	23%	54%	23%
Prince George's Co.	81%	35%	28%	9%
San Francisco	44%	53%	47%	19%
Springfield Emp. Zn.	63%	25%	0%	13%
All Responses, All Districts	**63%**	**56%**	**46%**	**10%**

2. Professional Standards for Educational Leaders (PSEL) and National Educational Leadership Preparation (NELP) Standards.

WSF implementation is associated with higher average student outcomes and improved outcomes in higher-poverty schools, but does not provide evidence that achievement gaps for Black/white or Hispanic/white students are narrowing.

What about outcomes? Are achievement gaps narrowing in WSF districts?

When exploring the links between WSF adoption and outcomes, the findings were tentatively positive. We compared the student performance trends from 2009 to 2016 for 18 districts that implemented WSF and districts in the same state that did not implement WSF. We find that **WSF implementation is related to positive test scores for the overall student population in those districts in both ELA and math** compared to non-WSF districts in the same state, even when controlling for student characteristics as well as anticipatory and phase-in effects.

But when drilling down to look at outcomes for a group of at-risk students[3], we do not find evidence of improved achievement for Black or Hispanic students. As such, **we find no narrowing of the Black/white or Hispanic/white achievement gaps that can be attributed to use of WSF.** In fact, we found some evidence of *widening* achievement gaps in districts that implemented WSF before 2011. The gap widened because student outcomes overall were improving but those of Black and Hispanic students were not.

When interpreting these outcomes, it is important to note that we find our study districts had substantial achievement gaps between white students and their Black and Hispanic peers before adopting WSF. This fact supports our earlier findings that districts typically adopt WSF in order to remedy longstanding inequities.

In our Colorado school-level analysis comparing schools in WSF districts to a propensity score matched sample of schools in non-WSF districts in the state, we find **schools overall in the WSF districts made small gains in ELA** compared to other Colorado districts overall. **The high-poverty schools in those WSF districts made larger ELA gains.** These high-poverty schools (where students qualifying for FRL make up more than 75% of total enrollment) are the very schools that tend to receive additional dollars from WSF formulas.

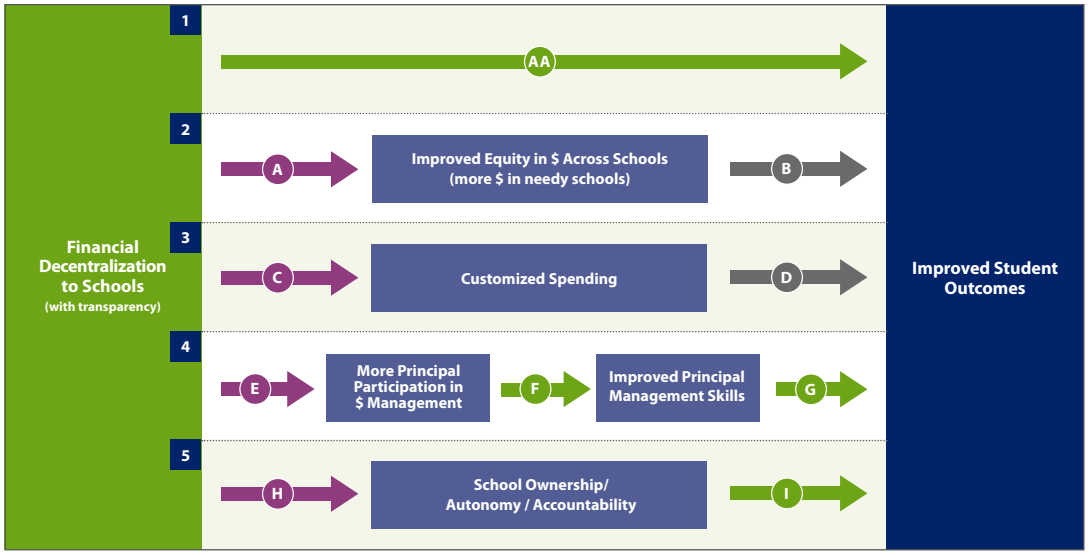
Despite efforts to create comparable groups, results should be interpreted with caution since WSF districts and their schools tend to be different than others in their state in both enrollment size and student composition. In addition, the effects of WSF cannot be isolated from the effects of other policies implemented around the same time.

Future research can further explore if and why WSF might drive improved student outcomes.

Most studies, including ours, have not been designed to validate a cause-and-effect relationship between WSF and improved student outcomes. But our research team analyzed existing literature and research to begin to identify if and *why* financial decentralization could contribute to improved outcomes. We found that many studies suggest that financial decentralization has led to effects that could conceivably contribute to improved student outcomes. In our analysis, we mapped the research landscape to uncover five possible theories on what mechanism is at play that would describe how a causal connection could exist (per the existing literature). These five theories are shown in Figure 6. The theories suggest that improved student outcomes may be caused by: a) increased spending (as a result of more equity across schools within districts);[I] more customized spending in schools;[II] greater principal participation in budgetary management;[III] improved principal management skills; [IV] and greater school autonomy, ownership, and responsibility for dollars spent. [V] This research landscape analysis (which documents the research for each causal mechanism) is summarized in our publication, "The Link Between Financial Decentralization and Improved Student Outcomes: What We Know and What We Need Future Research to Explore." [VI] For each causal path, we code the strength of evidence as it currently exists in the research literature.

3. The necessary data to disaggregate outcomes by other at-risk categories, such as low-income students, were not available.

Figure 6: Existing research on how financial decentralization drives improved student outcomes falls into five pathways with ten effects



Pathway	Effect	Evidence Base
1	AA	Promising
2	A	Strong
	B	Limited
3	C	Strong
	D	Limited
4	E	Strong
	F	Promising
	G	Promising
5	H	Strong
	I	Promising

Priority areas for future research

In April 2019, we hosted a researcher and practitioner roundtable to discuss our research landscape analysis and identify priorities for next-step investigation of the links between financial decentralization and improved student outcomes. Based on their own work and the landscape analysis, researchers and practitioners alike identified the mechanisms at play in the fourth and fifth pathways as potentially holding the most promise for yielding improved student outcomes. As such, participants viewed the effects on student outcomes from greater principal participation in budgetary management; improved principal management skills; and greater school autonomy, ownership, and responsibility for dollars spent as priority research areas going forward.

While the IES study has contributed greatly to our understanding of WSF, there remains much we do not know about the relationship between financial decentralization and improved student outcomes. While current research suggests that there may be a link, future research holds the promise of more definitively answering if—or under what conditions—financial decentralization can yield improved student outcomes.

Endnotes

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II. Chambers et al., 2008; Ashley Jochim, Title TBD, from the multi-year study, *How Do School and District Spending Patterns Change with Weighted Student Funding (WSF) and What Is Happening to Equity and Achievement, Particularly for Low-Income and At-Risk Students* (Seattle, WA: Edunomics Lab at Georgetown University, forthcoming); Marguerite Roza, Tricia Davis, and Kacey Guin, "Spending Choices and School Autonomy: Lessons from Ohio Elementary Schools," School Finance Redesign Project, Working Paper 21 (Seattle, WA: Center on Reinventing Public Education, University of Washington, 2007).

III. Bruce S. Cooper, Timothy R. DeRoche, William G. Ouchi, Lydia G. Segal, and Carolyn Brown, "Weighted Student Formula: Putting Funds Where They Count in Education Reform," Education Working Paper Archive (Department of Education Reform, University of Arkansas, 2006); Chambers et al., 2008; Matthew Steinberg, "Does Greater Autonomy Improve School Performance? Evidence from a Regression Discontinuity Analysis in Chicago," *Education Finance and Policy* 9, no. 1 (2014): 1-35; Jesse Levin, Karen Manship, Steve Hurlburt, Drew Atchison, Ryoko Yamaguchi, Adam Hall, and Stephanie Stullich, *Districts' Use of Weighted Student Funding Systems to Increase School Autonomy and Equity: Findings from a National Study* (Office of Planning, Evaluation and Policy Development, US Department of Education, 2019).

IV. Nicholas Bloom, Renata Lemos, Raffaella Sadun, and John Van Reenen, "Does Management Matter in Schools?" NBER Working Paper No. 20667 (Cambridge, MA: National Bureau of Economic Research, 2014); Richard Rossmiller, "Achieving Equity and Effectiveness in Schooling," *Journal of Education Finance* 12, no. 4 (Spring 1987): 561-577.

V. Bloom et al., 2014; Levin et al., 2013; Steinberg, 2014.

VI. Edunomics Lab, "The Link Between Financial Decentralization and Improved Student Outcomes: What We Know and What We Need Future Research to Explore" (Seattle, WA: Edunomics Lab at Georgetown University, 2020).

Acknowledgments

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A170348 to Georgetown University. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

The principal survey was done in partnership with the Center on Reinventing Public Education (CRPE) at the University of Washington. The outcomes portions of this study were conducted by CRPE.

Edunomics Lab is a university-based research center dedicated to exploring and modeling complex education fiscal decisions and growing the capacity of education leaders on the topic of education finance. The Edunomics Lab is affiliated with the McCourt School of Public Policy at Georgetown University.