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Tiffany Zhou, Tomas Molfino, and Jonathan Travers

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INTRODUCTION

The full financial impact of COVID-19 is now unfolding for school districts, and it is a story of much more than PPE, hand sanitizer, and laptops. Looking ahead at the bigger picture, we see that the magnitude of cost pressures to come will far outweigh even the costs that districts have incurred to date.

Particularly for large, urban school districts, **COVID-19 has greatly exacerbated the "triple squeeze" of rising costs, declining revenue, and greater student need** — challenges that districts were contending with even before the pandemic struck.

1. New COVID-Response Costs

The new costs that districts have incurred to enable both remote learning and safe in-person learning due to COVID-19 are widely documented. This includes investments in student technology and connectivity, PPE and sanitizers, and transportation, custodial, and nursing staff.[1] While districts reported some savings from the transition to virtual learning, most kept their existing cost structures for in-person learning intact and incurred *new* costs for safe, physically-distanced in-person instruction.

2. Declining Revenue

Many districts have been facing flat or declining revenues since the 2008 Great Recession. COVID-19 has sent state tax revenues plummeting, which means that districts will face significant budget pressures if K-12 budgets are cut proportionally.[2,3] This will be especially true for urban districts that are typically more reliant on state funding due to their higher proportion of low-income students and smaller local tax base. Additionally, early primary grade enrollment is down in many public school districts, which could have both immediate and long-term funding impacts.[4]

3. Greater Student Needs

Even before the pandemic, students of color and students with higher needs — including students from low-income backgrounds, English learners, and students with disabilities — experienced inequities in school and faced barriers to opportunity and success. And many districts already faced a rising bar for learning due to the adoption of more rigorous learning standards.

The COVID-19 pandemic has compounded these challenges: the abrupt shutdown of in-person school yielded unprecedented learning losses and social-emotional needs have risen dramatically due to the economic slowdown, social isolation, and the threat of the virus itself — again with a disproportionate toll on students of color and students with higher needs.[5] During this pandemic, the very same students who historically have been underserved continue to be the ones with the least access to safe, high-quality, engaging instruction.[6]

These increased needs and exacerbated inequities will be ongoing and will continue to compound over time if we do not take swift and urgent action. **Therefore, if we expect schools to address lost learning and students' social-emotional well-being, we must begin by understanding the financial cost of meeting these increased needs and increased inequities.**

No matter what the public health conditions are moving forward, the financial impact of COVID-19 looms much larger and longer-term than merely the current costs of implementing remote learning and safe in-person instruction. And it is the students, communities, and school districts that faced the biggest challenges and inequities to begin with who have lost the most from this pandemic and will have the greatest needs to overcome.

Getting over the hurdle of this new "triple squeeze" will require school districts to break free of the traditional cost structures and constraints that have limited meaningful transformation for decades. District leaders are central to this effort, but they cannot do it alone. State leaders need to remove funding barriers and instructional constraints, such as seat time requirements; and federal policymakers should direct near-term stimulus funding to meet the most urgent needs of school systems that have been hardest hit. This means helping districts cover remaining incremental costs, giving them boosts in resources to quell the tide of learning loss, *and* administering these funds in ways that promote equity and local flexibility.

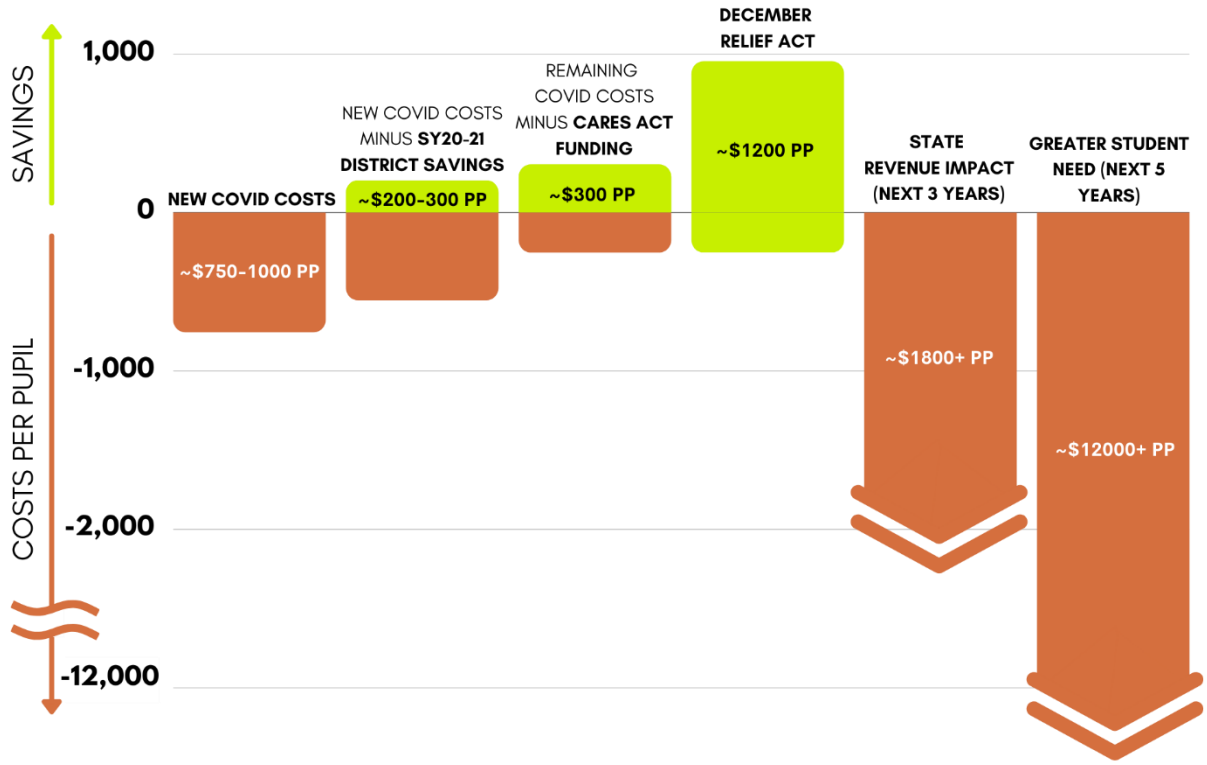
In this brief, we discuss our emerging perspectives on the long-term financial impacts of COVID-19 and implications for education leaders at all levels. This framework and early analysis can be used as a starting point for the field to engage in ongoing dialogue about each component of the challenge and to identify **the actions needed from district, state, and federal leaders to turn a year of crisis into a moment for meaningful transformation.**

UNDERSTANDING THE NEW "TRIPLE SQUEEZE"

To assemble early estimates about COVID 19's long-term financial impact on school districts, our analysis draws from a broad base on industry and academic research, news publications, interviews with ERS partner districts, and financial data from ERS' comparative database. **This analysis focuses on the impact to large urban and countywide school systems** that have significant populations of students who have been most impacted by the pandemic, such as students of color, students whose families are low-income, and students with additional learning needs. **Districts in our sample have an enrollment of 20,000 or more students and a pre-pandemic operating budget of approximately $12,000 per-pupil.**

Preliminary findings from our analysis suggest that although the immediate COVID response costs of approximately $750-1,000 per-pupil will be covered by a combination of the CARES Act and the latest relief package announced in December, **these short-term costs and the federal aid provided so far are both dwarfed by greater pressures from declining state revenue and greater student need.** Although these pressures will vary widely from district to district, current forecasts suggest that the average loss from state revenue will be approximately $1,800 per-pupil over three years (~5 percent of budget per year on average). And even this will be overshadowed by the full cost of addressing students' new academic and social-emotional needs, which could easily reach approximately $12,000 per-pupil over five years (~20 percent of budgets per year on average).

FIGURE 1. Multi-Year Financial Impact of COVID-19 on K-12 School Districts



1. New COVID-Response Costs

To prepare for the current school year, districts had to simultaneously be ready for two models of schooling — virtual and in-person — with limited guidance, and with high levels of uncertainty about which model would apply to which students, when, and for how long. And school districts have continued to operate in this limbo, with detriment to their financial sustainability and ability to consistently meet all students' needs.

Districts have incurred new costs for both remote and in-person instruction (even though many stayed fully-remote or only brought back small numbers of students in-person). A recent CDC study found that nationally, COVID mitigation strategies cost districts 0.3-7.1 percent *more* than their typical operating budget.[7] Deep-dive conversations with leaders of large, urban school systems suggest that from spring 2020 through the 2020-21 school year, the full scope of new costs — to cover health and safety, technology, and the bare minimum of services needed for teachers, students, and families to engage in schooling — were as high as approximately $750-1,000 per-pupil (equivalent ~6-8 percent of their annual operating budget), with the biggest driver being technology for remote learning. In some cases, districts that invested significantly in 1:1 technology prior to COVID-19 incurred lower costs, but this was not the case in many districts that serve higher proportions of students with higher needs. In one case, just the cost of new devices alone totaled over 5 percent of the district's total operating budget.

Districts have saved approximately $200-300 per-pupil (~2 percent of budget) from reducing in-person activities (such as athletics and field trips) and reductions in hourly and temporary staff (such as aides and monitors). However, districts were limited in their ability to realize more drastic savings because, in order to keep the option of reopening this year, they largely maintained preexisting cost structures for in-person instruction. The combination of CARES Act funding and the December relief package (totaling about $1,500 per-pupil or ~13 percent of budget[8]) will help districts close gaps in remaining expenses and get started on recovery in the coming school year. However, the multi-year specter of declining revenues and greater student needs creates **an imperative for more comprehensive aid that districts can use flexibly for the 2021-22 school year and beyond.**

2. Declining Revenues

State Budgets

States closed out the 2020 fiscal year with revenues 2 percent below pre-pandemic projections. The Center on Budget and Policy Priorities projects that without compensatory federal aid, declines in revenue from sales tax will cause states to experience shortfalls of 11 percent in 2021 and 10 percent in 2022, totalling 23 percent over the three-year period.[9] And if state K-12 education budgets are cut proportionally, analysis suggests that districts nationally will lose an average of approximately $1,800 per-pupil over three years.[10] While this is less drastic than earlier forecasts, revenue loss of this magnitude will still require districts to make significant cuts. **Districts that serve low-income communities are likely to be even more affected**, since state revenue typically makes up a greater share of their overall budget. Finally, this estimate does not account for drops in *local* revenue or the possibility that K-12 education could receive *disproportionate* cuts if state budgets prioritize spending in other areas, such as healthcare.

Enrollment

In addition to losses from state revenue declines, another revenue threat for districts is the significant drop in enrollment as families decide the safest and most appropriate learning environments for their children. NPR reports an average drop of 16 percent in kindergarten enrollment nationwide[11], with many urban and countywide districts reporting overall enrollment declines of 4-8 percent.[12] These enrollment losses could further reduce funding that districts receive on a per-pupil basis, unless states take actions to protect the hardest-hit districts. It is too early to tell how much of this loss (particularly from the early grades) can be recovered next year. While districts can adapt their underlying costs to reflect long-term enrollment changes, these changes take time to implement. A sudden drop in enrollment, without corresponding measures to protect revenue, could create significant budget pressures that will be difficult for districts to reconcile in the short-term.

3. Greater Student Needs

The largest cost impact of COVID-19, which will extend over multiple years, is the cost of meeting students' increased academic and social-emotional needs. While the full picture of student need is continually evolving and difficult to capture in its entirety, the magnitude of need — and the stark inequities that go along with it — will require structure changes and new investments over the long-term.

Academic Needs

Current estimates of COVID-19-related learning loss vary by student age and race, but consistently show greater losses in math than in reading. For example, NWEA estimates that students scored 5 to 10 percentile points lower in math during fall of 2020 than in fall of 2019.[13] Similarly, Renaissance found that overall, students are two to three months behind expectation in math.[14] Both sources found little to no negative impact on reading scores. However, both studies urge considerable caution in interpreting results because large proportions of students in schools with higher concentrations of poverty did not test at the start of the year and therefore are not reflected in the results.[15] Therefore, these findings likely do not capture the full size of learning loss experienced by students in urban school districts, especially among students of color and students with higher needs.[16]

McKinsey estimates that students began the 2020-21 school year about three months behind in math and one-and-a-half months in reading[17], and that if the current situation persists for the rest of the school year, the total learning loss in math by Fall 2021 will amount to seven to eight months for white students and 11-12 months for students of color.[18] These findings are based on tests administered in school[19], so may underrepresent learning loss experienced by students in large urban school districts, most of which have been remote for the majority of the year.[20]

Social-Emotional Needs

In addition to academic impacts, COVID-19 has also increased students' need for social and emotional support. The National Association of School Psychologists anticipates that the percentage of children exhibiting social-emotional or behavioral concerns could double or triple as a result of COVID-19.[21]

SUPPORTING GREATER STUDENT NEEDS: COST IMPLICATIONS

In districts with high concentrations of students who have been the most impacted by the pandemic, effective recovery and support strategies must address the root causes of educational inequities by reaching large numbers of students *and* providing more targeted support for the students who need it most.

Below, we look at the **cost implications of a three-tiered strategy for academic recovery and social-emotional support** in districts that serve high concentrations of students of color, students from low-income backgrounds, English learners, and students with disabilities.

1. **Broad academic support for all students through extended learning time**
2. **Targeted academic acceleration for a subset of students through intensive, "high-dosage" tutoring**
3. **Increased investment in social-emotional supports for all students**

These are examples of evidence-based strategies that can work together to support a continuum of student need. While actual strategy design and implementation will vary greatly by state, district, school, gradespan, and subject areas, this analysis illustrates the magnitude of support needed and the associated cost impact if districts keep their existing cost structures.

Assumptions Used in This Analysis

In order to estimate costs, we need to make assumptions about students' learning loss and needs. For simplicity, we used the following baseline assumptions in our methodology:[22]

- **Broad Academic Support:** used to address the estimated seven to eight months of learning loss that have occurred as a result of the pandemic.[23]
- **Targeted Academic Acceleration:** used to address the estimated *additional* three to five months of learning loss that some students (such as students of color[24]) may have experienced as a result of the pandemic — this is on top of the seven to eight months addressed by the broad-based strategy.
- **Social-Emotional Supports:** used to address an estimated doubling or tripling in the percentage of children exhibiting social-emotional or behavioral concerns.[25]

These estimates represent averages across a wide range of students and are based on scenarios with many interdependent factors. Where possible, we share a range of learning loss estimates and their associated per-pupil costs.

A Note on Special Education

Students with disabilities face unique learning challenges during remote learning. Although our analysis focuses on the components of increased cost for general education, there are three significant drivers of increased costs for special education to keep in mind:

- **Increased Need:** It has been challenging for schools to maintain high-quality services for students with disabilities during shutdowns and remote schooling.[26] As a result, students with disabilities may experience learning loss beyond that of students without disabilities, and addressing their needs will likely have additional associated costs.
- **Compensatory Services:** If schools were unable to fulfill IEP requirements during closures or remote learning, they must make up those services. Depending on the amount of service hours that need to be made up, this could pose a significant additional cost this school year or in 2021-22.
- **Increased Identification Rates:** The magnitude of learning loss and social-emotional trauma that students are experiencing as a result of the pandemic could result in increased numbers of students identified for special education services. The average cost per-pupil in special education is two to three times higher than the cost per-pupil for students who do not receive special education services — therefore, higher identification rates will likely increase the base cost for special education.

1. Broad Academic Support: Extended Learning Time

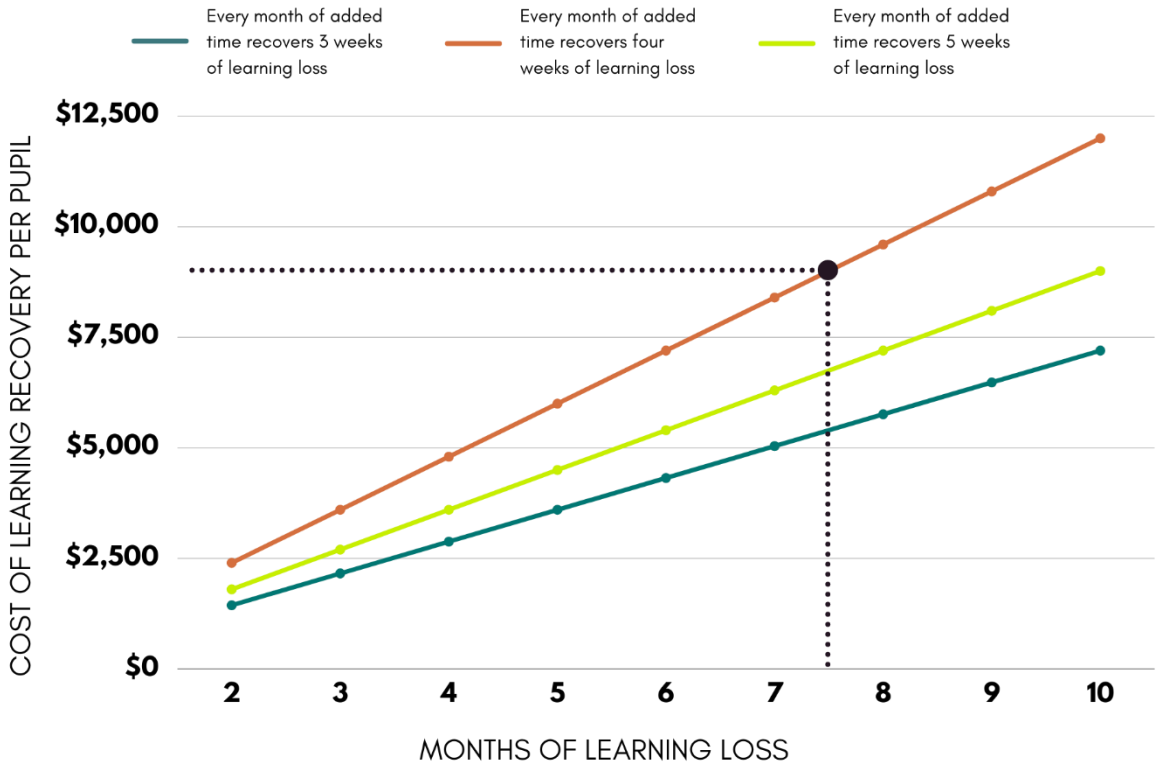
For districts with increasing student needs, extending the school day or year once in-person schooling resumes — and using that time to leverage flexible groupings, differentiated instruction, and a high-quality curriculum — can help students recover learning time that was lost during school closures and remote instruction.[27] For example, prior to COVID-19, Texas passed an initiative to fund up to 30 additional school days to address summer learning loss[28], recognizing that extended learning time creates opportunities for strategies that have been proven to benefit student learning, such as intersession academies, teacher collaboration and professional learning, and greater access to enrichment.[29]

How districts choose to invest in extended learning time will vary by the amount of learning recovery students need, as well as the effectiveness of the added time — for example, if every minute that is added recovers the same amount of learning lost, districts would need to add the equivalent of two months per year for five years to recover the estimated seven to eight months of lost learning. There are many factors that may influence the amount and duration of extended learning time, such as group sizes, the quality of instruction, and the number and type of subjects covered.

Figure 2 shows that the cost of a broad-based strategy like extending learning time varies by the amount of learning loss students experienced and how effective implementation is at recovering that lost learning.

The highlighted point shows that **using extended learning time to help recover the estimated seven to eight months of learning that students have lost as a result of the pandemic will cost approximately $9,000 per-pupil**, assuming every month of added time recovers three weeks of lost learning. This is equivalent to extending the school year by two months (or extending each school day by ~85 minutes) for five years, and a 15 percent increase in annual operating costs.

FIGURE 2: How Much Will it Cost to Recover COVID-19-Related Lost Learning Through Extended Learning Time?



Notes:

- *In this chart, we assume that a typical month has 20 school days (four weeks).*
- *This cost estimate is based on data from ERS' financial database which shows that 84 percent of a district's total annual operating budget is spent on instruction and school-level operations, with the remainder spent in central office and on overhead.*
- *We assume that central office and overhead costs are not affected by extended learning time, but that roughly 80 percent of instructional and school-level operations costs would increase (with 20 percent that is fixed or could be saved — for example through more streamlined staffing).*

2. Targeted Academic Acceleration: Intensive, "High-Dosage" Tutoring

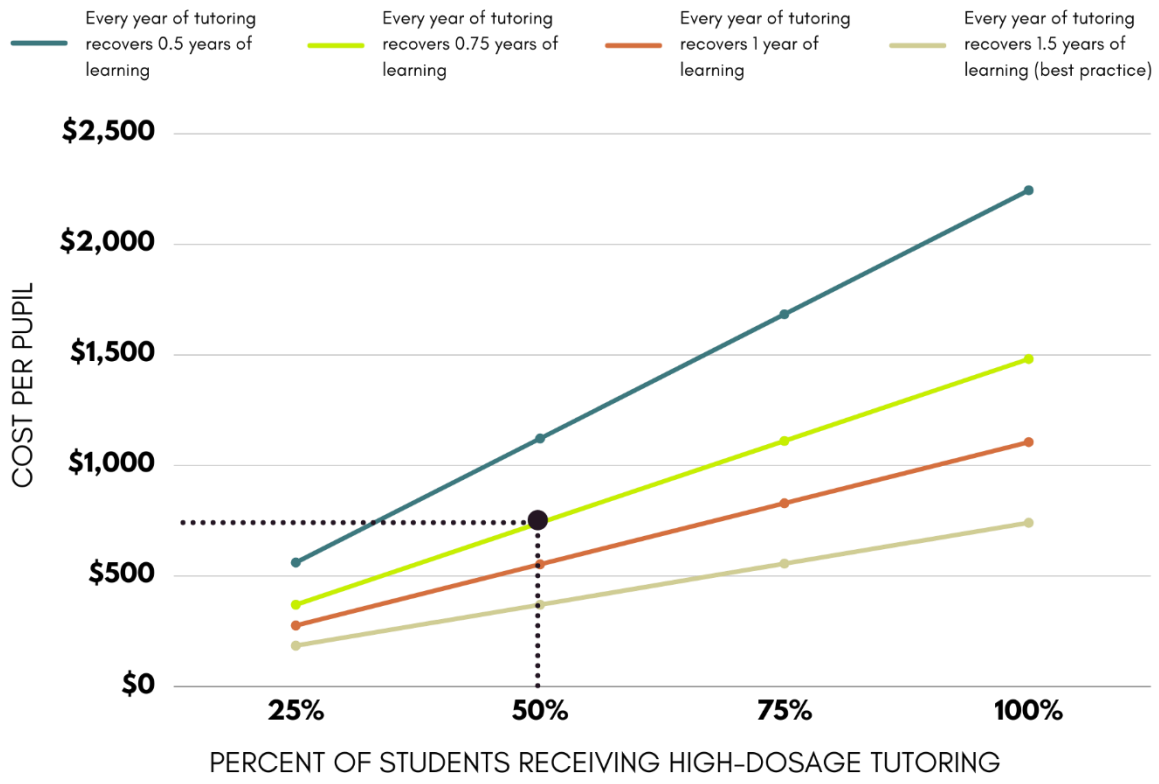
In addition to making significant investments in overall instruction, districts and schools should also plan for *targeted* instructional strategies to support students whose learning has been most disrupted by the pandemic. Intensive, "high-dosage" tutoring has demonstrated significant gains in the past and is rapidly taking hold in the national conversation as a promising strategy[30, 31] — therefore we use high-dosage tutoring as an example of an acceleration strategy, but recognize that districts may choose to pursue other strategies depending on their unique context.

Research on tutoring shows potential gains of one to two years of growth per year — however, these outcomes are based on best practice implementation at local scale.[32] Other meta-studies of tutoring show significant variation in outcomes across subjects, grade levels, group size, time of day, and types of staff. All of these factors would have implications for both the cost and overall effectiveness of tutoring.[33]

Another cost driver for tutoring (and other more targeted strategies) is the number of students receiving support. This will vary widely depending on a district's student need profile and their ability to implement tutoring at scale. For example, the availability of staff or third-party providers will likely be a bottleneck if tutoring is provided outside of regular school hours. Tutoring that is embedded throughout the school day would provide district's with more flexibility when it comes to the school-based staff and/or community organizations who are providing the tutoring, but would require making changes to master schedules.

Figure 3 illustrates how the costs to remediate the estimated *additional* three to five months of learning that some groups of students have lost due to the COVID-19 pandemic will vary depending on two main factors: the percent of students who need more targeted academic supports, and how effective those targeted supports are at recovering their additional learning loss.

FIGURE 3. How Much Will it Cost to Recover Additional COVID-19-Related Lost Learning for Targeted Groups of Students?



Note: *Our cost estimate is based on research showing that a year of daily tutoring (50 minutes) costs $2,500 per-pupil and leads to one to two years of learning gains.*[34]

The light green line shows costs associated with *best* practice implementation; the other lines show costs associated with less effective implementation timelines for recovering additional lost learning. The highlighted point shows that **recovering approximately half a year of learning for 50 percent of the student body through a targeted program like yearlong tutoring will cost approximately $700 per-pupil**

(or 6 percent of the budget). However, the duration and total cost of this intervention can vary widely depending on how effective it is at improving outcomes and how many students participate.

3. Social-Emotional Investments

The need for more social-emotional support has been widely discussed; the National Association of School Psychologists (NASP) projects that **the percent of students who experience social-emotional or behavioral concerns could double or triple as a result of the pandemic.**[35] In addition to a greater number of students, the intensity of need is likely to increase as well.

The most promising strategies for social-emotional support are deeply embedded in core instructional models and involve the participation of staff schoolwide, not just those dedicated to mental and behavioral health, such as guidance counselors and social workers. The costs of these strategies will vary widely depending on each school's starting point, as well as the specific implementation decisions they make. However, unlike studies on academic recovery, there is limited research on the expected impact of specific social-emotional strategies on concrete measures of need.

Recognizing these challenges to developing a robust estimate for social-emotional investments, we used ERS' comparative database to analyze district spending on social workers, psychologists, and guidance counselors as a proxy for their current investment in social-emotional supports. Then, we calculated the cost of doubling or tripling that investment, to spend on a combination of staffing, training, external support, and other costs related to schoolwide social-emotional support.

Increasing current district investments in social-emotional supports by 2.5X (the amount required to proportionally meet the increased student needs project by NASP) will cost approximately $600 per-pupil annually (5 percent of the budget). This amount is also equivalent to the approximate cost to reach the recommended student-to-social worker and student-to-counselor ratios of 250:1, a metric in which districts currently fall substantially short.[36] This analysis is helpful for highlighting the potential size of social-emotional investments that are needed; we do not recommend drastic, temporary increases to the number of support staff.

3. Estimating the Total Cost of Academic Recovery and Social-Emotional Support

The three-tiered strategy (broad academic support via extended learning time, targeted academic acceleration via tutoring, and increased investments in social-emotional supports) allows a district to support all students holistically, while directing additional resources to the students who need them most. The exact level of investment needed will depend on the amount of learning loss and social-emotional upheaval experienced across groups of students, as well as how effective each strategy is at improving outcomes.

FIGURE 4. How Much Will it Cost Per-Pupil to Implement Strategies That Address Students' Increased Academic and Social-Emotional Needs?

		Amount of learning loss (in months) addressed by a broad-based strategy						
		4	**5**	**6**	**7**	**8**	**9**	**10**
Amount of *additional* learning loss (months) addressed by targeted strategy	**+1**	$8,000	$9,200	$10,400	$11,600	$12,800	$14,000	$15,200
	+3	$8,400	$9,600	$10,800	$12,000	$13,200	$14,400	$15,600
	+5	$8,700	$9,900	$11,100	$12,300	$13,500	$14,700	$15, 900
	+7	$9,100	$10,300	$11,500	$12,700	$13,900	$15,100	$16,300
	+9	$9,500	$10,700	$11,900	$13,100	$14,300	$15,500	$16,700

Notes:

- *These costs include approximately $3,000 per-pupil for social-emotional supports over the course of five years ($600 per-pupil each year).*
- *The costs shown here assume the efficacy of extended learning time is 75 percent (in other words, that every month of added time recovers three weeks of lost learning).*
- *The costs shown here assume the efficacy of tutoring is 50 percent (in other words, that every year of tutoring recovers approximately seven months of lost learning).*
- *This analysis is based on approximately 50 percent of students receiving targeted support.*

In the scenario highlighted in orange, we estimate that this three-tiered strategy — addressing seven to eight months of learning loss through a broad strategy like extended learning time, recovering an additional three to five months of learning loss for targeted groups of students, and increasing social-emotional support for all students — would cost approximately $12,000-$13,500 per-pupil over the course of five years, or an average increase of approximately $2,500 per-pupil (~21 percent) per year.

This table also shows that changes to learning loss assumptions could reduce the cost implications by approximately one-third — for example, if it is safe for more students to return to in-person school or if the quality of remote learning experiences improves. **While these investments could restore students to pre-pandemic learning levels, the disparities that existed even before the pandemic began vastly exceed the recently-emerging needs and need both attention and action.**[37]

As new analysis continues to shed light on learning loss, it may be years until we know the exact impact of COVID-19 on students' learning and well-being, and the corresponding long-term cost implications for districts. However, right now the magnitude of new and exacerbated need is clear, and district leaders have already begun to call for additional support.[38]

WHAT POLICIES AND ACTIONS ARE NEEDED?

The unprecedented challenges facing K-12 school systems nationwide will require coordinated action from district, state, and federal leaders and a sustained, multi-year effort to transform and rebuild the nation's schools.

The most recent federal aid package will help districts address their immediate needs — such as improving schools' HVAC facilities to reduce COVID transmission or addressing learning loss in the short-term — through September 2023.[39] But our analysis underscores **the importance of multi-year investments to address increased student needs.** A more comprehensive federal stimulus plan for K-12 education must be more grounded in the tough realities of learning loss and social-emotional upheaval that students have experienced — and the true cost of what it will take to address those needs. Researchers and practitioners are rapidly generating new information that helps us understand the nature of students' needs, and all system leaders — at the local, state, and federal levels — should be thinking about how to clearly center their plans on concrete measurements and a deep understanding of student need.

Districts, meanwhile, must reexamine their underlying cost structures and take decisive action to pursue school design strategies that can provide higher-quality, more equitable instruction and social-emotional supports to students at a more sustainable cost. The COVID-19 pandemic has forced schools and districts to adopt new practices that just a year ago were unthinkable or seemed part of a distant future. While much has been lost for students, teachers, and communities in this crisis, there are seeds of learning from this experience that can be carried forward — for example, opportunities for virtual instruction, community partnerships, and a deeper level of family engagement.[40]

Finally, federal and state education leaders must help districts not only with financial support, but also by removing barriers and creating pathways that make it easier to implement strategies that are sustainable for students, teachers, and districts. In the upcoming days, weeks, and months, the K-12 education field must bring in stakeholders from every part of the system — from policymakers, to district leaders, to families, educators, and students themselves — to take part in shaping and cocreating what the next generation of schooling will become.

APPENDIX: Endnotes & Sources

[1] Mike Kennedy. *Reopening means an additional $1.8 million in costs for average-sized school district, administrators estimate.* Association of School Business Officials International, 2020. https://www.asumag.com/covid-19/article/21133640/reopening-means-an-additional-18-million-in-costs-for-averagesized-school-district-administrators-estimate

American Federation of Teachers. *Reopening Schools During a Time of Triple Crisis: Financial Implications.* 2020. https://www.aft.org/sites/default/files/wysiwyg/reopen-schools-financial-implications.pdf

[2] Center on Budget and Policy Priorities. *States Grappling With Hit to Tax Collections.* 2020. https://www.cbpp.org/research/state-budget-and-tax/states-grappling-with-hit-to-tax-collections

[3] Andrew Ujifusa. *Coronavirus Aid Might Not Prevent Cuts to School Funding, Analysis Shows.* EdWeek, 2020. https://www.edweek.org/policy-politics/coronavirus-aid-might-not-prevent-cuts-to-school-funding-analysis-shows/2020/04

[4] Anya Kamenetz, Marco A. Treviño, and Jessica Bakeman. *Enrollment Is Dropping In Public Schools Around the Country.* NPR, 2020. https://www.npr.org/2020/10/09/920316481/enrollment-is-dropping-in-public-schools-around-the-country

[5] Arianna Prothero. *Schools Struggle to Meet Students' Mounting Mental-Health Needs.* EdWeek, 2020. https://www.edweek.org/ew/articles/2020/05/01/schools-struggle-to-meet-students-mounting-mental-health.html

[6] Emma Dorn, Bryan Hancock, Jimmy Sarakatsannis, and Ellen Viruleg. *COVID-19 and student learning in the United States: The hurt could last a lifetime.* McKinsey & Company, 2020. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-student-learning-in-the-united-states-the-hurt-could-last-a-lifetime

[7] Ketra L. Rice, Gabrielle F. Miller, Fátima Coronado, and Martin I. Meltzer. *Estimated Resource Costs for Implementation of CDC's Recommended COVID-19 Mitigation Strategies in Pre-Kindergarten through Grade 12 Public Schools.* Center for Disease Control and Prevention (CDC), 2020. https://www.cdc.gov/mmwr/volumes/69/wr/mm6950e1.htm?s_cid=mm6950e1_w

[8] [8] Assumes approximately $300 per pupil for CARES, based on the following:
Marguerite Roza. *What Will the Financial Turmoil Mean for Public Education?* Edunomics, 2020. https://edunomicslab.org/2020/05/28/what-will-the-financial-turmoil-mean-for-public-education/

Phyllis W. Jordan. *What Congressional COVID Funding Means for K-12 Schools.* FutureEd, 2020.

https://www.future-ed.org/what-congressional-covid-funding-means-for-k-12-schools/

[9] Michael Leachman and Elizabeth Mcnichol. *Pandemic's Impact on State Revenues Less Than Earlier Expected But Still Severe.* Center on Budget and Policy Priorities, 2020. https://www.cbpp.org/research/state-budget-and-tax/pandemics-impact-on-state-revenues-less-than-earlier-expected-but

[10] Andrew Ujifusa. *Coronavirus Aid Might Not Prevent Cuts to School Funding, Analysis Shows.* EdWeek, 2020. https://www.edweek.org/policy-politics/coronavirus-aid-might-not-prevent-cuts-to-school-funding-analysis-shows/2020/04

[11] Marguerite Roza. *Financial Turmoil: The new federal aid package.* Edunomics, 2021. https://edunomicslab.org/wp-content/uploads/2021/01/Financial-turmoil-Jan-5-Roza.revised.pdf

[12] Anya Kamenetz, Marco A. Treviño, and Jessica Bakeman. *Enrollment Is Dropping In Public Schools Around the Country.* NPR, 2020. https://www.npr.org/2020/10/09/920316481/enrollment-is-dropping-in-public-schools-around-the-country

[13]Linda Jacobson. *'Right Now, All Students are Mobile': New Pandemic Data Confirms a 'Massive Event' Disrupting School Enrollment.* The 74 Million, 2020. https://www.the74million.org/article/right-now-all-students-are-mobile-new-pandemic-data-confirms-a-massive-event-disrupting-school-enrollment/

[14] Megan Kuhfeld, Beth Taraswaw, Angela Johnson, Erik Ruzek, and Karyn Lewis. *Learning during COVID-19: Initial findings on students' reading and math achievement and growth.* NWEA Research/Collaborative for Student Growth, 2020. https://www.nwea.org/content/uploads/2020/11/Collaborative-brief-Learning-during-COVID-19.NOV2020.pdf

[15] Renaissance. *How Kids Are Performing.* 2020. https://www.renaissance.com/how-kids-are-performing/

[16] Megan Kuhfeld, Beth Taraswaw, Angela Johnson, Erik Ruzek, and Karyn Lewis. *Learning during COVID-19: Initial findings on students' reading and math achievement and growth.* NWEA Research/Collaborative for Student Growth, 2020. https://www.nwea.org/content/uploads/2020/11/Collaborative-brief-Learning-during-COVID-19.NOV2020.pdf

[17] Urban districts across the country report an increase in failing grades among high-need students:
Stephen Sawchuk. *Should Schools Be Giving So Many Failing Grades This Year?* EdWeek, 2020. https://www.edweek.org/leadership/should-schools-be-giving-so-many-failing-grades-this-year/2020/12

Virtual attendance and engagement data suggest that millions of students may not have received any formal education since March 2020:
Hailly T.N. Korman, Bonnie O'Keefe, and Matt Repka. *Missing in the Margins: Estimating the Scale of the COVID-19 Attendance Crisis.* Bellwether Education Partners, 2020.

https://bellwethereducation.org/publication/missing-margins-estimating-scale-covid-19-attendance-crisis

[18] Emma Dorn, Bryan Hancock, Jimmy Sarakatsannis, and Ellen Viruleg. *COVID-19 and learning loss — disparities grow and students need help.* McKinsey & Company, 2020.
https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-learning-loss-disparities-grow-and-students-need-help#

[19] Findings were based solely on tests administered in school, excluding test results from students who took the test at their home. Nevertheless, a recent DIBELS study compared Fall 2019 and 2020 reading scores and found that the number of students requiring intensive reading intervention was two times larger for Black students than for white students over the same period of time:
Sarah D. Sparks. *Students' Reading Losses Could Strain Schools' Capacity to Help Them Catch Up.* EdWeek, 2020.
https://www.edweek.org/teaching-learning/students-reading-losses-could-strain-schools-capacity-to-help-them-catch-up/2020/12

[20] i-Ready. *Understanding Student Needs: Early Results from Fall Assessments.* Curriculum Associates, 2020.
https://www.curriculumassociates.com/-/media/mainsite/files/i-ready/iready-diagnostic-results-understanding-student-needs-paper-2020.pdf

[21] Alyson Klein. *Urban, High-Poverty Schools Prefer Remote Instruction Under COVID-19, Report Finds.* EdWeek, 2020.
https://www.edweek.org/education/urban-high-poverty-schools-prefer-remote-instruction-under-covid-19-report-finds/2020/08

[22] Alliance for Resource Equity. *Education Resource Equity in 2020-2021.* 2020.
https://www.educationresourceequity.org/2020-21-school-year

[23] National Association of School Psychologists. *Providing Effective Social-Emotional and Behavioral Supports After COVID-19 Closures: Universal Screening and Tier 1 Interventions.* 2020.
https://www.nasponline.org/resources-and-publications/resources-and-podcasts/covid-19-resource-center/crisis-and-mental-health-resources/providing-effective-social%E2%80%93emotional-and-behavioral-supports-after-covid-19-closures-universal-screening-and-tier-1-interventions

[24] All learning loss figures use math estimates (instead of reading) because math has shown to be more susceptible to interventions:
Rekha Balu, Pei Zhu, Fred Doolittle, Ellen Schiller, Joseph Jenkins, and Russell Gersten. *Evaluation of Response to Intervention Practices for Elementary School Reading.* U.S. Department of Education, 2015.
https://ies.ed.gov/ncee/pubs/20164000/

[25] Given that most urban districts are operating remotely, we used McKindsey's conservative status quo estimate. If urban school districts return to in-person learning before the end of the school year, learning losses may be less severe.

[26] We used McKinsey's projected 11-12 month learning loss estimate for students of color in remote environments to approximate the total magnitude of need for the students who have been hardest hit by the pandemic. With the broad-based strategy (extended learning time) recovering seven or eight months for all students, this leaves three to five months of additional learning loss to be addressed by using targeted supports with the most-affected students.

[27] National Association of School Psychologists. *Providing Effective Social-Emotional and Behavioral Supports After COVID-19 Closures: Universal Screening and Tier 1 Interventions.* 2020.
https://www.nasponline.org/resources-and-publications/resources-and-podcasts/covid-19-resource-center/crisis-and-mental-health-resources/providing-effective-social%E2%80%93emotional-and-behavioral-supports-after-covid-19-closures-universal-screening-and-tier-1-interventions

[28] Corey Mitchell. *Schools Struggled to Serve Students With Disabilities, English-Learners During Shutdowns.* EdWeek, 2020.
https://www.edweek.org/teaching-learning/schools-struggled-to-serve-students-with-disabilities-english-learners-during-shutdowns/2020/11

[29] Yael Kidron and Jim Lindsay. *Stated Briefly: What does the research say about increased learning time and student outcomes?* U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Appalachia, 2014.
https://ies.ed.gov/ncee/edlabs/regions/appalachia/pdf/REL_2014061.pdf

Will Dobbie and Roland G. Fryer Jr. *Getting Beneath the Veil of Effective Schools: Evidence from New York City.* National Bureau of Economic Research, 2011.
https://www.nber.org/system/files/working_papers/w17632/w17632.pdf

David Farbman. *The Case for Improving and Expanding Time in School: A Review of Key Research and Practice.* National Center on Time & Learning, 2012.
https://eric.ed.gov/?id=ED534894

Karen Walker. *Research Brief: Year-Round School.* Education Partnerships, 2009.
https://files.eric.ed.gov/fulltext/ED538286.pdf

[30] Texas Education Agency. *Additional Days School Year.* 2019.
https://tea.texas.gov/academics/learning-support-and-programs/additional-days-school-year

[31] Beth Schueler. *Summer "Vacation Academies" Can Narrow Coronavirus Learning Gaps.* Education Next, 2020.
https://www.educationnext.org/summer-vacation-academies-narrow-coronavirus-learning-gaps-springfield/

Kathleen Lynch and Heather Hill. *Broad-Based Academic Supports for All Students.* EdResearch for Recovery Project, 2020.
https://annenberg.brown.edu/sites/default/files/EdResearch_for_Recovery_Brief_6.pdf

Harvard Family Research Project. *Year-Round Learning: Continuity in Education Across Settings and Time Through Expanded Learning Opportunities.* National Conference of State Legislatures, 2012.
https://www.ncsl.org/Portals/1/Documents/educ/YearRoundLearning.pdf

[32] Elaine Allensworth and Nate Schwartz. *School Practices to Address Student Learning Loss.* EdResearch for Recovery Project, 2020.
https://annenberg.brown.edu/sites/default/files/EdResearch_for_Recovery_Brief_1.pdf

[33] Matt Barnum. *Evidence of learning loss is piling up. Here's how the U.S. could design a tutoring program to help.* Chalkbeat, 2020.
https://www.chalkbeat.org/2020/12/9/22165700/learning-loss-tutoring-blueprint-schools

[34] Roseanna Ander, Jonathan Guryan, and Jens Ludwig.*Improving Academic Outcomes for Disadvantaged Students: Scaling Up Individualized Tutorials.* The Hamilton Project, 2016.
https://www.hamiltonproject.org/assets/files/improving_academic_outcomes_for_disadvantaged_students_pp.pdf

[35] Abdul Latif Jameel Poverty Action Lab. *The Transformative Potential of Tutoring for Pre K-12 Learning Outcomes: Lessons from Randomized Evaluations.* 2020.
https://www.povertyactionlab.org/publication/transformative-potential-tutoring-pre-k-12-learning-outcomes-lessons-randomized?utm_source=twitter&utm_medium=social&utm_campaign=Tutoring_Evidence_Review

[36] Our analysis is based on research in which the personnel providing tutoring services are professional student support staff — such as paraprofessionals or undergraduate and graduate students in the education field — but are not certified teachers:

Roseanna Ander, Jonathan Guryan, and Jens Ludwig.*Improving Academic Outcomes for Disadvantaged Students: Scaling Up Individualized Tutorials.* The Hamilton Project, 2016.
https://www.hamiltonproject.org/assets/files/improving_academic_outcomes_for_disadvantaged_students_pp.pdf

Other studies have found that using a wider range of staffing options (such as students) can enable tutoring at a national scale at a cost of approximately $1,000 per pupil. However, the impact of this type of model on student outcomes is unknown — therefore, we do not use this number in our methodology.

Matthew A. Kraft and Grace T. Falken. *A Blueprint for Scaling Tutoring Across Public Schools.* Annenberg Institute at Brown University, 2020.
https://www.edworkingpapers.com/sites/default/files/ai20-335.pdf

[37] National Association of School Psychologists. *Providing Effective Social-Emotional and Behavioral Supports After COVID-19 Closures: Universal Screening and Tier 1 Interventions.* 2020.
https://www.nasponline.org/resources-and-publications/resources-and-podcasts/covid-19-resource-center/crisis-and-mental-health-resources/providing-effective-social%E2%80%93emotional-and-behavioral-supports-after-covid-19-closures-universal-screening-and-tier-1-interventions

[38] Student-to-social worker ratios:

National Association of Social Workers. *NASW Highlights the Growing Need for School Social Workers to Prevent School Violence.* 2018.
https://www.socialworkers.org/News/News-Releases/ID/1633/NASW-Highlights-the-Growing-Need-for-School-Social-Workers-to-Prevent-School-Violence

Student-to-counselor ratios:

American School Counselor Association. *Student-to-School-Counselor Ratios.* 2020.

https://www.schoolcounselor.org/press

[39] Dylan Wiliam. *COVID-19 Learning Loss: What We Know and How to Move Forward.* EdWeek, 2020. https://www.edweek.org/education/opinion-covid-19-learning-loss-what-we-know-and-how-to-move-forward/2020/08

[40] Richard Carranza, Austin Beutner, and Janice Jackson. *We need a Marshall Plan for our schools. And we need it now.* The Washington Post, 2020. https://www.washingtonpost.com/opinions/2020/12/13/we-need-marshall-plan-our-schools-we-need-it-now/\

[41] Andrew Ujifusa. *K-12 Schools Get $57 Billion in COVID-19 Deal; No Relief for State and Local Governments.* EdWeek, 2020. https://www.edweek.org/policy-politics/k-12-schools-get-57-billion-in-covid-19-deal-but-no-state-and-local-government-relief/2020/12?cmp=soceml-twfdbltz-ewnow

[42] Heather L. Schwartz, David Grant, Melissa Diliberti, Gerald P. Hunter, and Claude Messan Setodji. *Remote Learning Is Here to Stay: Results from the First American School District Panel Survey.* RAND Corporation, 2020. https://www.rand.org/pubs/research_reports/RRA956-1.html