Research Brief

5-7 minute read

Evaluation of utilization and potential effects of the SFUSD Multi-Tiered System of Supports (MTSS)

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Background:

The SFUSD Multi-Tiered System of Supports (MTSS) is a differential resource allocation system, introduced in 2012 to address equity issues in school funding. Student and teacher characteristics (inputs) at each school were used in an assignment formula[1] to create three Tiers used to differentiate resource allocation and additional site supports (Tier 3=most support). MTSS supports schools' needs for staff across the five essentials: school leadership, professional capacity, instructional guidance, student-centered learning climate, and family-community ties by funding additional personnel resources (i.e., Full Time Equivalents, FTEs)[2]. This research brief analyzes MTSS funding for the years 2016-2019 to: (1) describe the MTSS's Tier system and associated FTE allocations, (2) probe for potential impact of MTSS Tiers on student and teacher outcomes, and (3) examine whether particular FTE allocations are associated with changes in selected outcomes

Methods:

We use grade-by-school-by-year data from 2016-2019 (Slide 2). We have data on the inputs into the MTSS funding formula (Slide 3) for each year along with the assigned MTSS Tier. Note that the

[1]Compiled assignment formula here: https://docs.google.com/document/d/13QYbQD2Woy2Ao3Qkr83kVkr5GuHmsitf3JYQ_Aw5EFY/edit . SFUSD folder here: https://drive.google.com/drive/folders/1LcTuhC9IbJPF-wjIfP7DiFJmibt075_U

[2]These FTEs are: (1) Academic focused: Academic Response to Intervention Facilitator or ARTIF, Assistant Principal, Instructional Reform Facilitator, Literacy Coach, Counselor (2) Behavioural or Socio-emotional Learning focused: nurse, social worker, attendance liaison, family liaison (3) Other: TSA, T10 (security officers). FTE equivalents are reported as resources per 100 pupils.

number and type of FTE allocations associated with placement in a given Tier has been largely static over the four years. We use a range of outcomes including student academic outcomes (e.g., SBAC scores), other student outcomes (e.g., behavioral outcomes and attendance data), and indicators of teacher turnover.

Results [Below findings reference data exhibits that can be found here]

1. MTSS's Tier system and associated FTE allocations

MTSS effectively channeled additional resources to schools serving learners with higher rates of disadvantage (Slides 5-8). As a function of the Tier formula, Tier 3 schools had lower SBAC scores, lower SES students, and other indicators of higher educational need (Slide 5)[3].

Tier placement translates into higher FTEs (Slides 6-9). Tier 3 schools typically report more FTEs than Tier 1 or Tier 2 schools although there are some specific FTEs where allocations are more even; e.g., counselors in Grades 6 to 8 and Grades 9 to 12 (Slide 8), Nurse in Grades 9 to 12, and attendance liaison for Grades 1 to 5 (Slide 9)[4].

Note that the number and type of FTE allocations associated with placement in a given Tier is also fairly static. This is a result by design, as the MTSS formula did not witness big changes in the period considered; and schools' Tier assignment was also fairly static over time (Slides 10-11). In the three years spanning 2016-17 to 2018-19, 27 tier changes were observed for the 72 schools in Grades 1 to 5, 4 Tier changes for the 21 schools for Grades 6 to 8, and 7 Tier changes for the 13 schools for Grades 9 to 12 (Slide 5)[5]. This lack of mobility across Tiers is not surprising given the fact that most MTSS inputs are tied to the overall population of students, which does not dramatically change from year-to-year within a school.

2. Potential impact of MTSS Tiers on student and teacher outcomes

Tier placement is not associated with consistent changes across the key outcomes. Given the limited variation in Tier placement, we first focus on changes associated with consistent placement in a given Tier.

Consistent Tier placement was not associated with distinctive changes in student academic outcomes (Slides 13-15; left panels). For all three Tiers, we observe small, positive changes in student scores for Grades 1 to 5 (Slide 13), and a decline or no change in score for Grades 9 to 12 (Slide 15). We observe a decline in student and teacher outcomes for Tier 3 in Grades 6 to 8 relative to other Tiers (Slide 14). However, it is important to note that these changes are small and data available is insufficient to establish a pattern (i.e., cannot be distinguished from a finding driven by randomness); this is reflected in the large confidence intervals of these estimates for student and teacher outcomes (Slides 16-18). However, there does seem to be an increase in the gap between Tier 1 and Tier 3 for chronic absenteeism and teacher related outcomes across grade levels in 2019.

We also analyzed the relationship between Tier changes and changes in outcomes (Slides 13-15, right panels); a move up in Tier (e.g., Tier 2 to Tier 3) was not consistently associated with gains in the

[3]Inputs is the average of student demographics information (% homeless, % free or reduced lunch, % African American, Latino, Samoan students, % EL students, % newcomers and % students in foster care), student test performance (perfornance in F&P, SBAC ELA and SBAC math), and teacher characteristics (average teacher experience, turnover rates and % first and second year students). These inputs are mean centered and standardized, and the average is used by SFUSD to determine school Tiers

[4]The following FTEs were dropped: CHOW and Wellness coordinator

[5]The number of schools as well as the focus of MTSS allocations is focused towards primary and middle school grades, as will be discussed in the following analysis

student or teacher outcomes for either outcomes measured in the year of the Tier change or the following year, as reflected by the large confidence intervals (Slides 19-21).

3. FTE allocations and changes in selected outcomes

Neither specific FTE nor the total FTEs were associated with robust changes in the key outcomes. The low or negative association between Tier changes and outcomes (Slide 23-25) is also reflected in the FTE allocations. For Grades 1 to 5, total number of academic FTE allocations in the same year is linked with small declines in ELA and Math scores in Grades 3 and 5 and in chronic absenteeism (Slide 23); however, there are improvements (i.e., declines) in 1 year teacher turnover. Similarly, SEL FTE allocations for Grades 1 to 5 (Slide 23) and FTE allocations in Grades 6 to 8 (Slide 24) are linked with decline or small changes in teacher and student outcomes. Grades 9 to 12 had lower FTE allocation in general and a less progressive FTE allocation (Slide 25). Individual FTE allocations have a similar relationship with outcomes (Slides 26-28). We observe the biggest relationship with outcome changes for ARTIF, Family liaison, and Attendance liaison for Grades 1 to 5 (Slide 26).
However, confidence intervals are large and generally preclude firm conclusions about non-zero associations.

Summary:

The MTSS was effective in delivering more educational supports, in the form of FTEs, to schools that serve higher-need students. The analyses conducted here suggest two facts: (1) MTSS successfully targeted resources to schools and students that needed them. (2) These additional supports do not consistently translate into gains across a number of key metrics. Similarly, specific FTEs did not reliably translate into gains.

Given the accumulating evidence that funding can affect student outcomes[6], we briefly note some potential limitations associated with study design that may have hindered our ability to detect such associations here. A primary caveat has to do with the challenges of study design. Given that Tier placement was fairly static, we had limited capacity to look at the effect of Tier changes. Thus, we focused primarily on analysis of differences in continuous placement in a given Tier but such work is challenging given that it is difficult to disentangle the effect of Tier placement from the structural features of a school that lead to Tier placement. We also make a note about the potential student experiences that were not measured. The addition of educational staff in the form of FTEs to the schools must have resulted in changes to the experiences students had in those schools.

Future work—in particular, qualitative work—investigating the nature of those changes could potentially inform subsequent investigation into the potential impacts of the MTSS funding program. While the lack of a clear connection between the MTSS-funded supports and student/teacher outcomes suggests that the policy may require refinement if direct impacts on these outcomes are the main goal, we emphasize that the fact that MTSS is channeling resources to higher-need students is a highly non-trivial finding given the regressive nature of funding in many locales[7]. Future research can examine the allocation mechanism into Tiers and explore simplification, and also compare MTSS effectiveness with the effectiveness of allocation of financial resources directly to schools (through, for example, the weighted student formula)

[6] Baker, B. D. (2017). How money matters for schools. Palo Alto, CA: Learning Policy Institute.
[7] https://apps.urban.org/features/school-funding-do-poor-kids-get-fair-share/