

SCHOOL FUNDING SYSTEMS:

Equity,
Transparency,
Flexibility

SECTION 1

Equity

PRACTICAL TOOLS
for District Transformation

ANALYSES AND DO-IT-YOURSELF WORKSHEETS

THE SCHOOL FUNDING SYSTEM WORKSHEET SERIES INCLUDES analysis sheets on the spending variation per pupil and worksheets with step-by-step instructions to help you calculate and measure equity and transparency. Below is a complete list of analyses and corresponding

worksheets. These analyses can help identify your largest funding challenges and greatest opportunities for action. Armed with this knowledge, you will be able to quantify transformational opportunities for your district. This document contains Analyses 1-7.

GET THE REMAINING
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Analyses for funding practices

	ANALYSIS	WORKSHEET
EQUITY	1. Variation in per-pupil spending by school	1. General education spending per pupil by school and school level
	2. Variation in incremental spending for special populations by school	2. Incremental per-pupil spending for special populations by school
	3. Broad distribution of highly specialized programs across schools	3. Special education fill rate
	4. School size differences combined with strict funding formulas	4. Small school spending premium by district
	5. Budgets based on inaccurate enrollment projections	5. Projected versus actual enrollment
	6. Imbalances in teacher compensation among schools	6. Average teacher compensation by school
	7. Ad hoc exceptions to funding guidelines in response to individual school needs	7. Actual student-to-teacher ratio versus target staffing rate
TRANSPARENCY	8. Percentage of district budget reported at the school level	8. Percentage of district budget reported by school
FLEXIBILITY	See Self-Assessment	See Self-Assessment

Data checklist

Use this list to gather the data and files that you will need to complete the worksheet that follows. Once you have the data you need and know which questions you want to answer, follow the steps identified in the worksheet for the appropriate analyses. You will need:

District budget file at the lowest level of detail available.

This file will allow you to:

- a. Identify all K–12 operating budget line items.
- b. Provide position-level detail to identify FTEs and position titles by department/location (i.e., you can identify the number of classroom teachers at each school in the district).
- c. Provide funding-source information to allow you to identify spending on special populations (specifically special education, ELL, and poverty).
- d. Identify actual salary, not average salary, and, if possible, the benefits for each position.

District K–12 enrollment file by grade and by school.

This file will allow you to:

- a. Identify total student enrollment by student type:
 - i. Identify total general education enrollment.
 - ii. Identify total ELL enrollment, broken out by program so you know which students are self-contained/substantially separate and which students are integrated/mainstreamed.
 - iii. Identify total special education enrollment, broken out by program so you know which students are self-contained/substantially separate and which students are integrated/mainstreamed, and by disability type.
- b. Identify total student enrollment by student demographic (e.g., poverty).

District human resources file, including supervisor/evaluator information for teachers. This file will allow you to:

- a. Determine the total number of special education teachers by program type.

District special education staffing and program design file. This file will allow you to:

- a. Identify the district's special education staffing ratios.

ANALYSIS AND WORKSHEET 1

If more than one-fourth of the schools in your district deviate more than 15% from the median, you likely have significant funding inequity in your district.

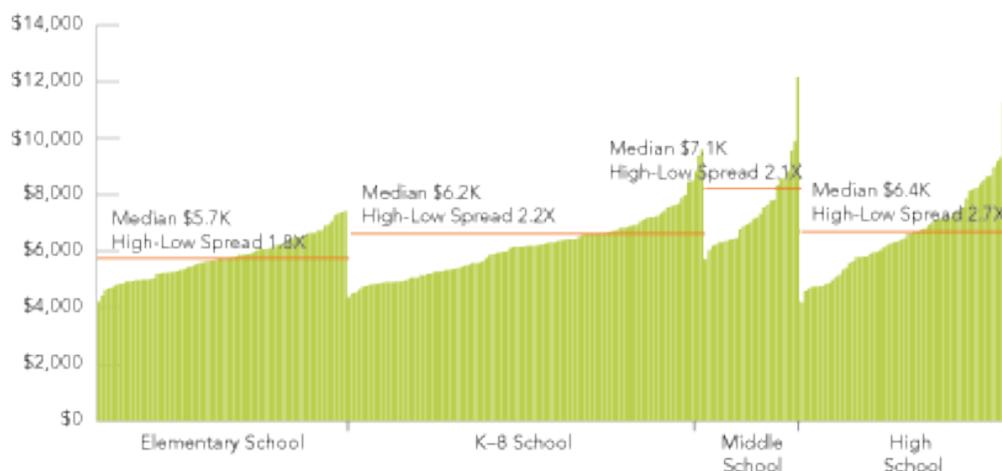
Analysis 1: Variation in per-pupil spending by school

The most straightforward indicator of equity is per-pupil spending by school. To get a preliminary sense of equity across schools, we use the relatively simple calculation of general education, school-reported spending per general education student.

This measure is limited because it does not reflect special education and English language learner (ELL) populations nor capture school-related expenses reported at the district level, but it is a good starting place for understanding equity.

Figure 1 illustrates the general education per-pupil spending in one typical urban district. The vertical lines represent the overall per-pupil expenditure at each school. These schools have been segmented by level: elementary, K–8, middle, and high school, with the orange lines representing the median per-pupil spending for each school type. In this district, there are dramatic differences in funding — both within and across school levels. Within school levels, the highest-funded schools receive approximately twice the funds that the least-funded schools receive. These discrepancies also exist across school levels, with elementary students receiving the lowest funding level and middle school students receiving the highest, reflecting a spending gap of \$1,400 per pupil.

Figure 1: General Education Spending per Pupil by School



Each line represents the level of funding for a particular school. At every school level, some schools receive as much as twice that of other schools.

Once you have calculated the general education per-pupil spending at each school and the median for your district, you can gauge the magnitude of inequity across schools. The degree of funding variation can be summarized by calculating the percentage of schools in the district with per-pupil funding that is more than 15% above or below the median for the district. In the district in Figure 1, for example, the funding in 41% of the schools deviates more than 15% from the district median.

As a rule of thumb, if more than one-fourth of the schools in your district deviate more than 15% from the median, you likely have significant funding inequity in your district.

Worksheet 1: General education spending per pupil by school and school level

OBJECTIVE: Determine level of equity of general education spending per pupil for each school.

SUMMARY OF METRICS

STEP 1: Calculate general education per-pupil instructional cost.

STEP 2: Calculate per-pupil noninstructional fixed cost.

STEP 3: Calculate general education per-pupil spend, school reported.

STEP 4: Calculate the median of general education per-pupil spend, school reported.

STEP 5: Chart the general education per-pupil spend, school reported.

STEP 6: Determine how many schools fall outside 15% of the median.

REMINDER

Figure 1: General Education Spending Per Pupil by School



General education per-pupil spend, school reported is the most complicated measure to calculate. It also is the most critical because it offers a true “apples-to-apples” comparison of general education spending across schools. This metric not only helps you to identify and manage inequity but also can be used to counter questions and objections from others who may be using less-accurate spending measures.

We define **general education per-pupil spend, school reported**:

$$\text{General education per-pupil instructional cost (Step 1)} + \text{Per-pupil noninstructional fixed cost (Step 2)}$$

STEP 1: Calculate general education per-pupil instructional cost.

1. Using your district budget file:

- Determine the **total K–12 operating budget** for each school.
 - Exclude nonoperating budget line items that are budgeted at schools (e.g., debt service, property rental/lease, capital expenses).
 - Exclude non-K–12 budget line items that may be budgeted at schools (adult education, prekindergarten, etc.).
- Determine the total spend on **general education instructional staff** (teachers and aides) for each school.
 - Identify total spending on teacher and aide compensation for each school.
 - Exclude any teachers and aides who do not work in a general education classroom (e.g., ELL teachers, special education teachers).

2. Using your district K–12 enrollment file:

- Identify the **total number of K–12 students** for each school.
- Identify the **total number of K–12 students in general education classrooms** for each school.
 - This includes general education students and all special-needs students who may be mainstreamed and sit in a general education classroom (i.e., most often all special-needs students EXCEPT special education self-contained students).
 - Specifically:
$$\frac{\text{K–12 total enrollment} - \text{K–12 special education self-contained enrollment}}{\text{K–12 students in general education classrooms}}$$

3. Calculate **general education per-pupil instructional cost**:

$$\frac{\text{Total spend on general education instructional staff}}{\text{Total number of K–12 students in general education classrooms}} = \text{General education per-pupil instructional cost}$$

STEP 2: Calculate per-pupil noninstructional fixed cost.

1. Using your district budget file:

- a. Determine the total **K–12 operating budget** for each school (see Step 1).
- b. Determine the **total unspecified spending** at each school (i.e., exclude positions and resources used for ELL, special education, and free and reduced-price lunch).

2. Identify total number of K–12 students for each school (from Step 1).

3. Calculate total noninstructional schoolwide fixed costs:

$$\begin{array}{r} \text{Total unspecified spending} \\ - \text{Total spend on general education instructional staff} \\ \hline \text{Total noninstructional schoolwide fixed costs} \end{array}$$

4. Calculate per-pupil noninstructional fixed cost:

$$\frac{\text{Noninstructional schoolwide fixed costs}}{\text{Total K–12 students (includes special education and ELL)}} = \text{Per-pupil noninstructional cost}$$

STEP 3: Calculate general education per-pupil spend, school reported.

$$\begin{array}{r} \text{General education per-pupil instructional cost (Step 1)} \\ + \text{Per-pupil noninstructional fixed cost (Step 2)} \\ \hline \text{General education per-pupil spend, school reported} \end{array}$$

STEP 4: Calculate the median of the general education per-pupil spend, school reported.

STEP 5: Chart the general education per-pupil spend, school reported, sorting from lowest to highest cost within school type.

STEP 6: Determine how many schools fall outside 15% of the median.

1. Calculate the median general education per-pupil spend, school reported by school type.
2. For each school type, identify the schools with the highest and the lowest general education per-pupil spend, school reported.
 - a. Use the following formula to obtain the high-low spread within each school type:

$$\frac{\text{Highest general education per-pupil spend, school reported}}{\text{Lowest general education per-pupil spend, school reported}}$$

3. Within each school type, identify the number of schools that have a general education per-pupil spend, school reported that is outside 15% of the median:

$$\frac{\text{Number of schools outside 15\% of median}}{\text{Total number of schools within the school type}} = \text{Percentage of schools that are greater than or less than 15\% of the median}$$

NOTE: LIMITATIONS TO THIS ANALYSIS

First, this metric reflects only school-reported expense: only what the district budgets at the school level. This may differ by district. For example, in one district, custodians may be a line item on every school budget and would be included in this school-reported number, while in another district, they may be budgeted centrally within the Department of Custodial Services and hence would not be in this school-reported number. School-reported numbers may not provide an accurate picture of equity.

For instance, if a district allocates custodians inequitably to schools, that inequity does not appear in the school-reported number because the custodians are budgeted centrally and are not on school budgets. Generally, the less of your district's budget that is school reported, the less accurately this comparison measures equity.

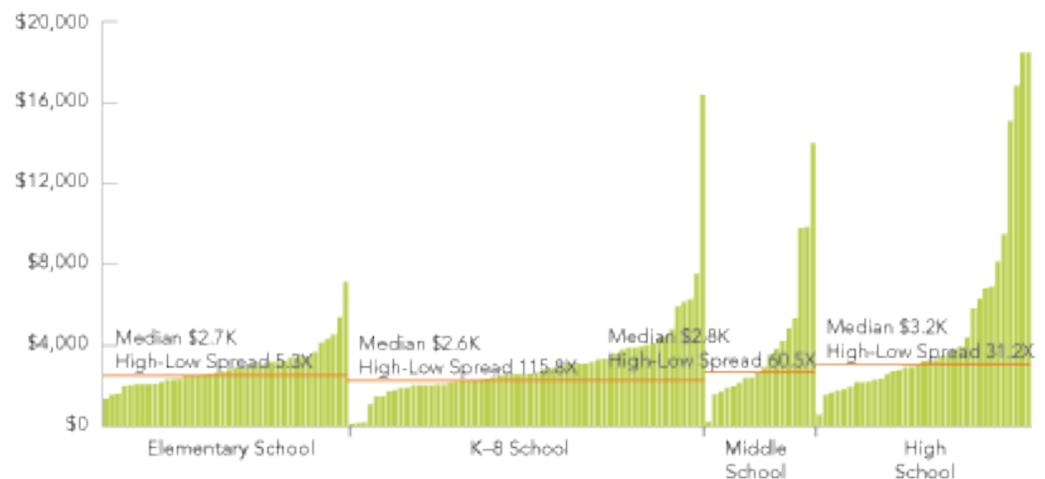
Second, this metric looks only at the spending on general education students. It excludes the additional funding going to ELL and special education students. General education will not reflect inequity in the distribution of special education and ELL funds across schools.

Analysis 2: Variation in incremental spending for special populations by school

Analyzing general education spending is a good place to start, but it doesn't tell the entire funding story. All the districts with which we've worked spend significant portions of their budget to support special populations — special education students; ELL students; students in poverty; and, in some cases, students who are off track or struggling academically but don't fall into one of these other categories. Since spending for these student populations can vary significantly by school, determining the extent of that variation is the next step in diagnosing the cause of funding inequities. In this section, we provide two analyses of special population spending. The first provides an overall comparison of incremental spending by group. The second, more detailed approach is appropriate if there is significant variation in student needs *within* a given special population across schools.

To illustrate how special population spending can vary by school, **Figure 2a** shows ELL-specific per-pupil spending on ELL students by school in the same district for which the general education spending is shown on page 4. We have included only ELL spending that can be tracked to the individual school because allocating central expenses evenly over the special education population can mask differences in actual school-to-school spending. (Note: If less than 50% of your ELL-specific spending can be tracked to the school level, this analysis will not be meaningful for your district.) As with general education spending, there are dramatic variations in the incremental per-pupil spending both across and within school types.

Figure 2a: Incremental ELL Spending per Pupil by School*



There are dramatic variations in the incremental per-pupil spending for ELL students, both across and within school types.

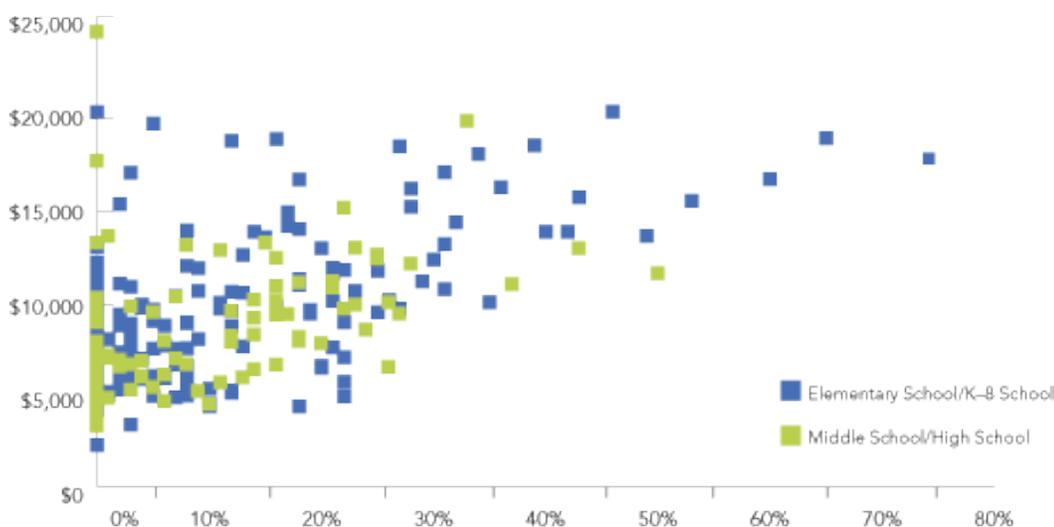
**Includes only expenses tracked to the school level*

The same analysis can quantify spending by school for other high-needs student groups, including special education students, students in poverty, and off-track or struggling students.

This analysis will give you a general indication of whether there is inequity in funding for each special population across schools. However, some of the differences in per-pupil spending by school can and will be explained by differences in the needs within the specific group. You will need to drill down to understand whether the spending differences are in fact “inequitable” or just a reflection of these differences.

These differences in the needs of special populations across schools can be especially large in special education. As an example of a more nuanced analysis of spending variation, **Figure 2b** shows the incremental per-pupil spending on special education students by school. Again, we have included only special education spending that can be tracked to the individual school because allocating central expenses evenly over the special education population can mask differences in actual school-to-school spending. In this case, we have arrayed the per-pupil spending by school (Y axis) against the percentage of each school’s special education population that is self-contained (X axis), using the percentage of self-contained students as a proxy for the overall level of need in the special education population at that school. As you would expect, per-pupil spending generally increases as the percentage of self-contained students increases. However, there are still significant variations in per-pupil spending, even among schools with similar distributions of self-contained versus resource students. Some elementary schools with apparently similar percentages of high-needs students receive four times as much incremental special education funding as others.

Figure 2b: Incremental Special Education Spending per Pupil* versus Self-Contained Special Education Enrollment (As a Percentage of Total Special Education Enrollment)



There are significant variations in spending among schools in the same district, even among those with similar distributions of self-contained versus resource students.

**Includes only expenses tracked to the school level*

As with general education, once you have calculated the incremental per-pupil spending for different special populations at each school and the median for your district, you can gauge the magnitude of inequity across schools. The degree of funding variation can be summarized by calculating the percentage of schools in the district with incremental per-pupil funding that is more than 25% above or below the median for the district.

Apply a 25–25 guideline for your analysis: If one-fourth or more of the schools in your district deviate 25% or more from the median for any special population, funding for those students may be driving significant inequity in your district. While you will need to drill down to understand the source of these spending differences in more detail, this high-level analysis can identify disparities and point you to areas that need examination.

If one-fourth or more of the schools in your district deviate 25% or more from the median for any special population, funding for those students may be driving inequity.

Worksheet 2: Incremental per-pupil spending for special populations by school

OBJECTIVE: Determine incremental per-pupil spending for special populations for each school.

SUMMARY OF METRICS

STEP 1: Identify the incremental ELL, special education, poverty, and struggling student spend by school.

STEP 2: Identify the ELL, special education, poverty, and struggling student enrollment by school.

STEP 3: Calculate the incremental ELL, special education, poverty, and struggling student per-pupil spend, school reported.

STEP 4: Create graphs to compare the incremental ELL, special education, poverty, and struggling student per-pupil spend, school reported across schools.

STEP 1: Identify the incremental ELL, special education, poverty, and struggling student spend by school.

1. Using your district budget file:

- a. Determine the **total spend on ELL students** for each school.
 - i. *Identify any spending that is paid for by ELL-specific revenues or has a district-directed program/account code that represents ELL services.*
- b. Determine the **total spend on special education** for each school.
 - i. *Identify any spending that is paid for by special-education-specific revenues or has a district-directed program/account code that represents special education services.*
- c. Determine the **total spend on poverty** for each school.
 - i. *Identify any spending that is paid for by poverty-specific revenues or has a district-directed program/account code that represents services for poverty students.*
- d. If your district also directs funding or resources toward students who are struggling academically, regardless of whether they fall into one of the three previous categories, determine the **total spend on struggling students** for each school. (Note: Use whatever criteria you use in your district to define this population.)
 - i. *Identify any spending that is paid for by struggling-student-specific revenues or has a district-directed program/account code that represents services for struggling students.*

STEP 2: Identify the ELL, special education, poverty, and struggling student enrollment by school.

1. Using your district K–12 enrollment file:

- a. Identify the **total number of K–12 students** for each school.
- b. Identify the **total number of K–12 ELL students** for each school.
- c. Identify the **total number of K–12 special education** students for each school.
- d. Identify the **total number of K–12 special education self-contained students** (should be a subset of the K–12 special education students identified above) for each school and calculate the percentage of special education students who are self-contained.
- e. Identify the **total number of K–12 poverty students** for each school.
- f. Identify the **total number of K–12 struggling students** for each school.

STEP 3: Calculate the incremental ELL, special education, poverty, and struggling student per-pupil spend, school reported.

1. Calculate the incremental ELL per-pupil spend, school reported:

- a. For each school:

$$\frac{\text{Total spend on ELL}}{\text{Total number of K-12 ELL students}} = \text{Incremental ELL per-pupil spend}$$

2. Calculate the incremental special education per-pupil spend, school reported:

- a. For each school:

$$\frac{\text{Total spend on special education}}{\text{Total number of K-12 special education students}} = \text{Incremental special education per-pupil spend}$$

3. Calculate the incremental poverty per-pupil spend, school reported:

- a. For each school:

$$\frac{\text{Total spend on poverty}}{\text{Total number of K-12 poverty students}} = \text{Incremental poverty per-pupil spend}$$

4. Calculate the incremental struggling student per-pupil spend, school reported:

- a. For each school:

$$\frac{\text{Total spend on struggling students}}{\text{Total number of K-12 struggling students}} = \text{Incremental struggling student per-pupil spend}$$

STEP 4: Create graphs to compare the incremental ELL, special education, poverty, and struggling student per-pupil spend, school reported across schools.

1. For ELL, poverty, and struggling students, re-create Figure 2a: Incremental ELL Spending per Pupil by School:

- a. Within school types (elementary, K-8, middle, high school), sort schools from lowest to highest based on their incremental ELL, poverty, or struggling student per-pupil spend.
- b. Calculate the median within each school type and the high-low spread (highest school spend/lowest school spend).

2. For special education, re-create Figure 2b: Incremental Special Education Spending per Pupil by School:

- a. Categorize schools into school types (elementary, K-8, middle, high school).
- b. Graph a scatterplot that plots each school individually:
 - i. *X-value = Percentage of K-12 special education students who are self-contained at the school (from STEP 2, 1d).*
 - ii. *Y-value = Incremental special education per-pupil spend, school reported at the school.*

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 1 and 2: Variations in spending

Questions to Consider

1. Is there a significant range in general education per-pupil spending across schools in your district?
2. What percentage of schools in your district falls more than 15% from the median for per-pupil spending? How does this compare to other districts?
3. Are there variations in per-pupil spending by school level? Is this by design?
4. What percentage of your student population is made up of special education students, ELL students, students in poverty, or struggling learners?
5. Are there variations in incremental per-pupil spending for these special populations across schools? Is this by design?
6. How does your district allocate additional resources to special populations (special education students, ELL students, students who qualify for free and reduced-price lunch, struggling learners)?
7. Does your district provide additional funding to schools with high numbers of students who are off track or struggling academically, even if they are not special education or ELL?

Take Action!

If these first two analyses have identified significant funding inequity, you will want to understand what is driving that inequity.

- **Conduct the next five analyses to quantify the drivers of inequity.**
- **Implement a process of ongoing measurement of per-pupil spending by school.** You can develop an annual process to understand funding variations across schools and student types and then identify opportunities to refine your funding rules to reduce unintentional variations. The two analyses presented here are a good starting point, but your district should track spending to specific schools and specific students with as much precision as possible. For example, much of the support for special populations such as special education students and ELL students is often managed and tracked centrally. You can develop mechanisms for understanding more clearly how those resources are actually deployed from school to school to determine whether they are being directed in the way you intend. In addition, different schools may be using special populations staff in different ways. In one district in which we worked, ELL teachers were brought into general education classrooms to support the ELL students in those classrooms, but this assignment also reduced student-to-teacher ratios for all students in that class for part of each school day. Understanding in more detail how schools are deploying the resources they have can inform equity decisions as well as identify best practices that can be shared across the district.
- **Consider a weighted student funding system.** Allocation systems that award dollars based on student need instead of staff positions can improve funding equity across schools. Many of the unintentional inequities described in this guide that result

from rounding up partial staff allocations or ad hoc exceptions to staffing ratios disappear when dollars are allocated instead of staff. In addition, student-based funding systems can provide more transparency around how districts are investing to serve needs of particular student populations. To maximize equity, think carefully about the relative funding your district wants to give to different student populations, including special education students, ELL students, students in poverty, and off-track or struggling students. Remember: These systems are successful only if supportive conditions exist, including overall funding levels that are adequate to provide flexibility; principals who have the skills, support, and data to make good resource decisions; and accountability structures to ensure effective resource use. If most school dollars are tied up in mandated positions, then an allocation based on each student could create unintended consequences. Student-based funding does not have to be “all or nothing.” As a first step, consider whether there are specific programs or a larger portion of the school budget that you can convert to dollar allocations. Also look for opportunities to increase flexibility over how resources are used at schools.

- **Provide more precision within your current funding system.** If the shift to a weighted student funding system is impossible in your district, you can reduce unintentional variations by adjusting your staffing-based funding formulas. Allocating partial full-time equivalents (FTEs) to schools instead of always rounding up to the nearest FTE can reduce variation across schools, especially for special populations in which enrollment is small and rounding of staff positions can make a big difference (e.g., the difference between one ELL teacher and two, based on a difference of only one or two students). You also can target supplemental funding to schools that are underfunded relative to other schools, either overall or in specific areas.
- **Target supplemental funding to students with the greatest needs.** For the next few years, urban districts will continue to face intense budget pressure and be called on to make cuts. You can use this opportunity to increase equity among schools and students by matching funding to student need in a way that provides necessary support for all high-needs populations, including students who are off track or struggling academically. Many districts already weight special education, ELL, and free and reduced-price lunch students differently in the staffing formulas or provide additional resources to schools with significant populations of these students. Since these students may already receive additional resources through categorical funding streams, you might consider providing additional resources specifically for students who enter a school significantly below standard proficiency levels.
- **Reduce restrictions on special population funding.** You can often provide school leaders with more flexibility around serving special populations by increasing student-to-staff ratios and ensuring they are serving each student in the least restrictive environment. A careful revision of Individual Education Plans (IEPs) can redefine support for some students to ensure greater resources as well as content expertise in the core classroom setting. Core teacher teams can then target these resources toward instructional support for struggling learners in ways that are more directly focused on and adaptive to their changing learning needs.

The two analyses in this section showed you whether your district has differences in spending by school. The next five analyses will help you determine what drives the most spending variation in your district.

Students may be better served by being grouped together in a single school serving a larger number of similar students taught by teachers most qualified to meet their needs.

Analysis 3: Broad distribution of highly specialized programs across schools

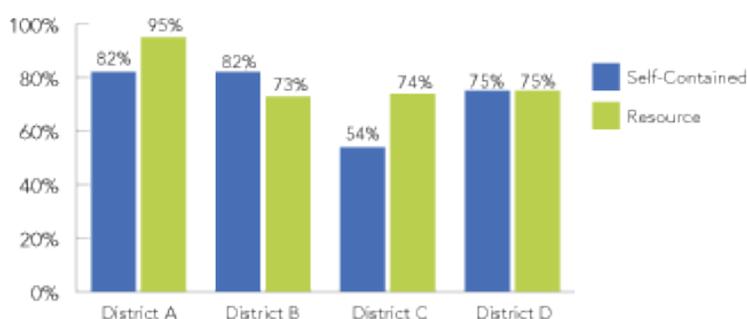
Program placement and student assignment decisions also can affect the equity and effectiveness of serving special student populations. Many districts try to serve each student at the school of choice and to integrate students as much as possible into general education settings, and this approach makes sense for most students. However, there is a subset of students who need very intense or specialized services and support. Due to the regulations and high fixed costs associated with serving these students, enrolling them across many schools throughout the district rather than in selected schools can make it difficult to find enough teachers with the needed expertise and may result in unfilled capacity and unnecessary costs. Clustering the highest-needs special education or ELL students can enhance the delivery of services without replicating the cost structure more times than necessary.

The benefits of allowing special-needs students to attend local schools and schools of their choice must be compared to the costs incurred, both in more expensive delivery and in potentially lower-quality instruction. Many districts have a hard time finding highly qualified special education and ELL teachers for these populations. Students may be better served by being grouped together in a single school serving a larger number of similar students taught by teachers most qualified to meet their needs.

Figure 3 illustrates that placements for special education students in four urban districts result in classes smaller than required and underuse of staff. The “fill rate” describes how many students on average are in a special education class relative to the district’s target class size for that disability category. A fill rate of 100% represents a perfect match between the number of “program seats” available for students at a given school and the number of students filling those seats. In each of these four districts, schools are offering classes to special education students that are, on average, one-third smaller than the classes required by those students’ IEPs.

These smaller class sizes are not deliberate decisions based on student need but the random result of student choice and residential patterns. Altering program placement and student assignment to increase fill rates to 90% or higher could free significant resources to devote to other areas, including additional support for these students.

Figure 3: Special Education Fill Rates*



Fill rates under 90% may not be an effective use of resources. Across these districts, low special education fill rates present an opportunity to rethink how these students’ needs are met and free up significant resources for other investments, including additional services to support these students.

**Estimated based on number of special education staff, students, and actual special education teachers in district and class-size guidelines for various disabilities and levels*

Worksheet 3: Special education fill rate

OBJECTIVE: Determine approximate special education fill rates.

SUMMARY OF METRICS

STEP 1: Identify the number of special education students by program type. (At a minimum, split out resource room and self-contained.)

STEP 2: Identify the actual number of special education teachers by program type.

STEP 3: Identify the district's special education staffing ratios or program design.

STEP 4: Calculate the number of special education teachers needed based on program design.

STEP 5: Calculate the approximate special education fill rate.

STEP 1: Identify the number of special education students by program type.

1. Using your district enrollment file:

- a. Determine the total number of special education students by program type.
 - i. You can do this based on the district's program type (e.g., resource room, consultant, integrated special class, self-contained 12:1, self-contained 8:1, self-contained 6:1, etc.).
 - ii. At a minimum, do this for resource room versus self-contained. For example:

	Number of special education students
Resource	636
Self-Contained	1,417

STEP 2: Identify the actual number of special education teachers by program type.

1. Using your district budget or human resources file:

- a. Determine the total number of special education teachers by program type. For example:

	Actual number of special education teachers
Resource	58.2
Self-Contained	1,153.0

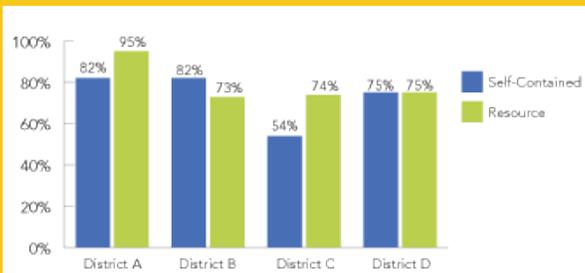
STEP 3: Identify the district's special education staffing ratios or program design.

For example:

	Program design/staffing ratio
Resource	20:1 staffing ratio
Self-Contained	12:1 staffing ratio

REMINDER

Figure 3: Special Education Fill Rates



STEP 4: Calculate the number of special education teachers needed based on program design.

1. Divide the number of special education students by the district's special education program design/staffing ratio.
2. Apply a 90% adjustment factor for student placement/assignment issues.

For example:

	Number of students DIVIDED by staffing ratio	Apply 90% adjustment	Number of special education teachers needed based on program design
Resource	$\frac{636 \text{ students}}{20:1 \text{ staffing ratio}}$	$\frac{32 \text{ teachers}}{90\% \text{ adjustment}}$	= 36 teachers
Self- Contained	$\frac{1,417 \text{ students}}{12:1 \text{ staffing ratio}}$	$\frac{118 \text{ teachers}}{90\% \text{ adjustment}}$	= 131 teachers

STEP 5: Calculate the approximate special education fill rate.

1. Divide the number of special education teachers needed based on program design by the actual number of special education teachers by program type.

For example:

	Number of special education teachers needed based on program design	Actual number of special education teachers	Approximate special education fill rate
Resource	36	58.2	61%
Self- Contained	131	153.0	85%

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 3: Broad distribution of highly specialized programs across schools

Questions to Consider

1. How much differentiation is there in your district in which specialized programs are provided from school to school?
2. How are students matched with specialized programs?
3. How close to capacity is the enrollment of various specialized programs?

Take Action!

- **Make student placement more strategic for students with highly specialized program needs.** Tough economic times provide an important context for reviewing the number and size of these programs to make sure that all students get the specialized support they need but in a cost-effective way that maximizes the use of scarce specialized staff and does not divert necessary resources from the shrinking core program. This approach may require changes in student assignment and added transportation costs to concentrate students in schools, but it can ensure that these students get the highest expertise and best facilities, even if they may not always get their first choice of schools.
- **Examine student assignment policies for students in all specialized programs.** Shifts of even a few students from one school to another can have a large impact on fill rates in small, special program classes, potentially freeing up resources to use to provide broader support or additional support for the same special program students. Even choice districts should examine whether they might be able to manage special populations by schools to more closely match populations with target class sizes.
- **Rethink service delivery model for schools with unavoidably small programs.** It might be possible to find high-quality, cost-effective ways to serve smaller numbers of students. Use of part-time expert staff, teachers with multiple certification, and outside contractors can sometimes be combined to create even more effective models.

In many cases, additional funds end up paying for higher per-pupil administration and operating costs rather than being targeted to improve instruction.

Analysis 4: School size differences combined with strict funding formulas

Staffing allocation formulas can cause unplanned extra spending in small schools, especially those with fewer than 350 students. One reason for this inequity is budgeting for staff positions rather than dollars, based on a staffing ratio (e.g., one teacher per 25 students or one administrative position per 400 students). In small schools, such rigid ratios are more likely to result in fractional staff allocations that are rounded up, adding entire staff members, even when the incremental number of students is not enough to fill an entire classroom or program.

Funding inequities also occur when districts award “flat” staff allocations of schoolwide positions — for example, a principal, secretary, guidance counselor, music teacher, and librarian — to all schools regardless of size. This practice drives up the per-pupil cost for small schools whose student numbers may warrant only a partial position. This same phenomenon also can result in lower per-pupil funding in especially large schools, which may receive only one principal or administrator even if they have twice the number of teachers and students as a smaller school.

On the next page, **Figure 4** quantifies the spending differential between small and large schools in several urban districts, showing the unintentional effect of school size on funding. We calculated this total by first quantifying the difference in general education per-pupil spending at small schools versus larger schools, then multiplying that difference by the number of small schools in the district. Although this calculation probably underestimates the additional spending because it does not capture special education and other centrally allocated expenses that could account for some inequity, it provides a good starting point for evaluating whether or not districts are paying an unintentional premium for small schools.

Figure 4: Small School Spending Premium by District

	DISTRICT A	DISTRICT B	DISTRICT C	DISTRICT D	DISTRICT E
Average general education per-pupil spending at schools with fewer than 350 students	\$5.7K	\$9.2K	\$8.0K	\$7.4K	\$12.0K
Average general education per-pupil spending at schools with 550–650 students	\$5.0K	\$7.1K	\$6.1K	\$5.8K	\$9.6K
Small school premium per school	\$761/pp	\$2,141/pp	\$1,829/pp	\$1,626/pp	\$2,441/pp
Number of small schools	28 schools	26 schools	6 schools	50 schools	18 schools
Total small school premium	\$6.3 million	\$15.4 million	\$2.6 million	\$22.8 million	\$5.0 million
Percentage of district K–12 operating budget	1.1%	2.5%	0.2%	1.1%	0.8%

In these districts, the total small school premium is driven by the average spending per pupil and the aggregate number of small schools in the district.

In the case of these five districts, District C pays a large per-school premium for small schools but has only six schools with 350 students or fewer and thus experiences less total inequity than District D, which pays a smaller per-school premium but has a larger number of small schools. And in District B, eliminating the cost premium of “subscale” schools could allow it to recoup as much as 2.5% of its operating budget to be reinvested in other areas.

Districts with the highest small school premiums are those that allocate funds on a strict staffing ratio basis and also provide additional funding to small schools to ensure they can provide a wide range of services. It can be advantageous to provide additional funds to small schools, especially if those schools serve high-needs student populations. However, in many cases, these additional funds end up paying for higher per-pupil administration and operating costs rather than being targeted to improve instruction.

Worksheet 4: Small school spending premium by district

OBJECTIVE: Determine how general education per-pupil spend at small schools (defined here as schools with fewer than 350 students) compares to spend at midsize schools (550–650 students).

SUMMARY OF METRICS

STEP 1: Identify school groupings: small schools and mid-size schools.

STEP 2: Identify the general education per-pupil spend, school reported for small and mid-sized school groups.

STEP 3: Calculate small school premium.

STEP 4: Calculate proportion of students who attend small schools.

STEP 5: Calculate total district spending on schools.

STEP 6: Calculate incremental small schools premium as a percentage of total district budget.

REMINDER

Figure 4: Small School Spending Premium by District

	District A	District B	District C	District D	District E
Average general education per-pupil spending at schools with fewer than 350 students	\$5.7K	\$9.2K	\$8.0K	\$7.4K	\$12.0K
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Small school premium per student	\$761/pp	\$2,141/pp	\$1,829/pp	\$1,626/pp	\$2,441/pp
Number of small schools	28 schools	26 schools	6 schools	50 schools	18 schools
Total small school premium	\$6.3 million	\$15.4 million	\$2.6 million	\$22.8 million	\$5.0 million
Percentage of district K–12 operating budget	1.1%	2.5%	0.2%	1.1%	0.8%

STEP 1: Identify school groupings: small schools and midsize schools.

- Using your district K–12 enrollment file:
 - Identify the number of schools with fewer than 350 students and number of schools with 550–650 students.
 - Classify small school group as schools with fewer than 350 students and midsize school group as schools with 550–650 students.

STEP 2: Identify the general education per-pupil spend, school reported for small and midsize school groups.

- Reference Analysis and Worksheet 1, Step 3 (page 6): You have already calculated this metric.

STEP 3: Calculate the small school premium per school.

- Small school general education per-pupil spend, school reported
 – Midsize school general education per-pupil spend, school reported

Small school premium (general education per school)

STEP 4: Identify the number of students who attend small schools.

- Using your district K–12 enrollment file:
 - Identify the total K–12 district enrollment.
 - Identify the total number of students who attend schools with fewer than 350 students.
 - Calculate the **percentage of students in the district who attend schools with fewer than 350 students.**

STEP 5: Calculate the district spending on small school premium.

1. Using your district K–12 budget file:

$$\begin{array}{r} \text{Small school premium (Step 3)} \\ \times \text{ Total number of students in the district who attend schools with fewer} \\ \text{than 350 students (Step 4)} \\ \hline \text{Total district spending on small school premium} \end{array}$$

STEP 6: Calculate total district spending on schools.

1. Using your district K–12 budget file:

- a. Identify the **total dollar amount that the district spends on schools** (and not for central office department or district-level service).

STEP 7: Calculate incremental small schools premium as a percentage of total district budget.

1. To approximate how much more the district might be spending on subscale schools:

$$\frac{\text{Total district spending on small school premium (Step 5)}}{\text{Total district spending on schools (Step 6)}} = \text{Incremental small school premium as a percentage of total district budget}$$

Note that you may want to create a separate chart for elementary schools and secondary schools if there are large spending differences by school level.

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 4: School size differences combined with strict funding formulas

Questions to Consider

1. Is there a significant difference in per-pupil spending by school size in your district?
2. Are there a large number of small schools in your district, and are you paying a premium for those schools?
3. Do you use the same staff-to-student ratio throughout your district to allocate funds, or do you vary these ratios to account for differences in school size? For differences in student populations?
4. Do you allow fractional staff allocation and part-time assignments?

Take Action!

- **Revise staff-based formulas to reduce small school premiums.** One way to reduce the spending differences among schools is by replacing staff-based formulas with per-pupil formulas. Rather than using teacher-student ratios to allocate whole staff positions, a per-pupil formula awards dollars that follow the students and their differing needs. By specifying per-pupil dollar amounts, you can specify a “small school subsidy” of whatever size you feel is appropriate. This small school foundation level must ensure that small schools receive enough staff and flexibility to meet all legal requirements for operating schools.

You also can improve equity by allowing fractional funding allocations and giving principals more flexibility over the types and numbers of positions they can fill. For instance, if districts allocate administrative positions in partial FTE increments, one principal may choose to have a full-time assistant principal but forego a librarian, while another may choose to staff a combined librarian/reading specialist position and have one teacher serve as a part-time assistant principal. You also can allocate teaching staff in smaller increments.

- **Foster part-time employees and staff who play multiple roles.** The ability to use part-time staff is especially important in small schools, whose lower student enrollment does not always justify full-time positions. The ideal is a versatile faculty with teachers who can teach multiple subjects; however, certification requirements make these positions difficult to fill. Specialization, electives, and enrichment become very expensive in small organizations. You can make it easier for schools to hire the optimal amount of instruction in a particular subject by recruiting and encouraging part-time employees.

- **Encourage schools to leverage community resources.** Investigate partnerships with universities and other community resources to provide staff, expertise, and services, especially in non-core, part-time, and enrichment activities. Consider allowing students to earn relevant class credits outside of the normal school day.
- **Target small school environments to the students who will benefit most from them.** Districts may make a strategic decision to invest more in smaller schools because of the benefits they provide to certain student populations. In this case, districts should monitor enrollment at those schools to ensure that the investment is in fact benefiting the intended students. In addition, revising staffing formulas as outlined above will give these schools more flexibility to leverage the additional spending in ways that can most positively affect the students.

The actual impact of enrollment projection inaccuracy will depend on how district policies add funds and/or staff for overenrollment and reduce funds and/or staff for underenrollment.

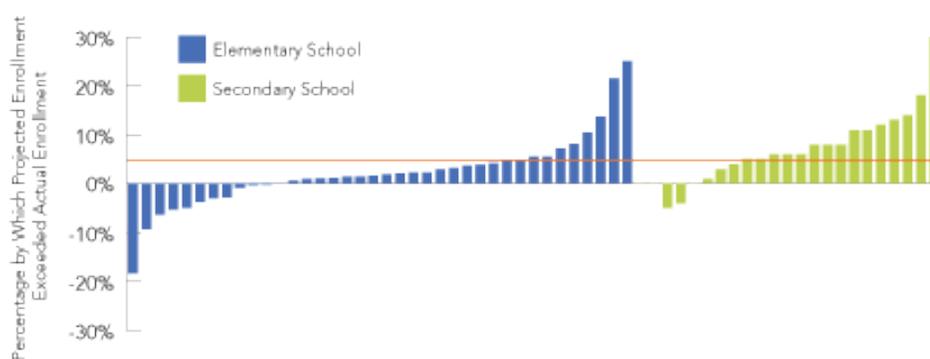
Analysis 5: Budgets based on inaccurate enrollment projections

School budgets are initially awarded based on predictions of how many students will attend a school in the fall. When enrollment targets are inaccurate, the district faces a choice: Adjust the budget (which may require moving faculty to different schools) or accept a degree of inequity in funding between schools.

The smaller the schools and more mobile the population, the more difficult it is to project enrollment accurately. For instance, in the district described in Analysis 1 (Kingston and Cutler), the large comprehensive high schools were much closer to enrollment targets than small high schools or entrance-exam schools, in which enrollment was significantly lower than the projection. As a result, some small, underenrolled schools that also happened to have low concentrations of special-needs students received a windfall of up to \$6,000 more per student than high-needs schools that hit their enrollment targets. This inequity occurred because the district “held harmless” the schools with overprojected enrollment, permitting them to keep the projected teaching positions. As a result, significantly more resources went to the smaller schools that, on average, serve a lower-poverty student population.

Figure 5 shows the differences between projected and actual enrollment in a large urban school system during the 2008–09 school year. The majority of the district’s schools overprojected their enrollment, as indicated by the bars above the 0% line. In 71% of secondary schools and 26% of elementary schools, the projected enrollment exceeded actual enrollment by more than 5% (those schools above the orange line), yet these schools received their entire projected budget. The actual impact of enrollment projection inaccuracy will depend on how district policies add funds and/or staff for overenrollment and reduce funds and/or staff for underenrollment.

Figure 5: Projected versus Actual Enrollment



Projected enrollment exceeded actual enrollment by more than 5% in 26% of elementary schools and 71% of secondary schools. Yet these schools still received their full budget allocation.

Worksheet 5: Projected versus actual enrollment

OBJECTIVE: Determine the magnitude of over- or underprojected enrollment by school based on actual enrollment for most recent school year.

SUMMARY OF METRICS

STEP 1: Determine total K–12 actual enrollment for each school.

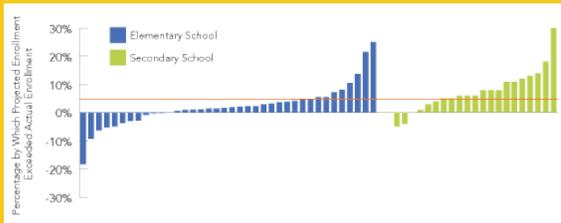
STEP 2: Determine total K–12 projected enrollment for each school.

STEP 3: Calculate percentage under- or overenrollment for each school.

STEP 4: Distribute schools based on under- or overenrollment.

REMINDER

Figure 5: Projected versus Actual Enrollment



STEP 1: Determine total K–12 actual enrollment for each school.

1. Reference Worksheet 1, Step 1: 2a (page 5): You have already calculated this metric.

STEP 2: Determine total K–12 projected enrollment for each school.

1. Using your district K–12 projected enrollment file, determine projected enrollment for each school.

STEP 3: Calculate percentage under- or overenrollment for each school.

$$\frac{\text{Projected enrollment}}{\text{Actual enrollment for each school}} = \text{Percent under- or overenrollment}$$

Note: Ensure that you are using enrollment numbers for the same school year.

STEP 4: Distribute schools based on under- or overenrollment.

1. Sort school from under- to overenrollment.
2. Determine number of schools that have under- and overprojected enrollment.

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 5: Budgets based on inaccurate enrollment projections

Questions to Consider

1. What percentage of your schools' actual enrollment is within 5% of projection?
2. Do the same schools fall below projected enrollment year after year?
3. Do you provide additional budget dollars or staff to overenrolled schools?
4. Do you remove budget dollars or staff from underenrolled schools?
5. Do overprojected/underenrolled schools have similar characteristics with regard to size, program, or type of governance?

Take Action!

- **Continuously improve enrollment projections.** Adjusting for missed enrollment projections after the start of the school year is limited by the difficulty and upheaval of transferring staff or students. However, reviewing several years of projections and actual enrollments can often give you clues for how projections can be improved. The same schools may exceed or fall short of enrollment each year, or other patterns may emerge. You should review your enrollment accuracy annually to identify opportunities for improvement.
- **Revise policies for adjusting budgets based on enrollment.** If your actual enrollment is off from projections by a wide margin, you should review each school's budget on a case-by-case basis to determine whether an adjustment is appropriate and potentially tighten policies, adding and taking away dollars and staff from schools once enrollments are final. This action must be approached cautiously to reduce disruption, especially at underenrolled schools, but there will likely be opportunities, especially at the most underenrolled schools, to make changes without major negative impact.
- **Provide "loans" to schools with volatile enrollment.** Some districts have had success granting loans to schools based on enrollment projections as well as a definitive explanation of how the funds will be used. The loans become part of the school's annual budget if enrollment projections are reached, but they must be paid back if enrollment falls short of expectations.
- **Explore holding money in reserve for schools in which enrollment exceeds projection.** If your enrollment is extremely volatile and difficult to predict accurately, consider holding back a portion of your budget until enrollments are finalized. That way schools whose enrollment comes in under projection won't lose any funding, and you will have budget left to distribute to schools in which enrollment meets or exceeds projection.
- **Consider closing schools that are significantly, chronically underenrolled.** Chronic underenrollment, especially in choice districts, can be a sign of deeper issues with a school. If you have schools that are less than 50% enrolled or your district expects enrollment to decline overall, consider closing low-enrollment schools to free resources for investment in other areas.

ANALYSIS AND WORKSHEET 6

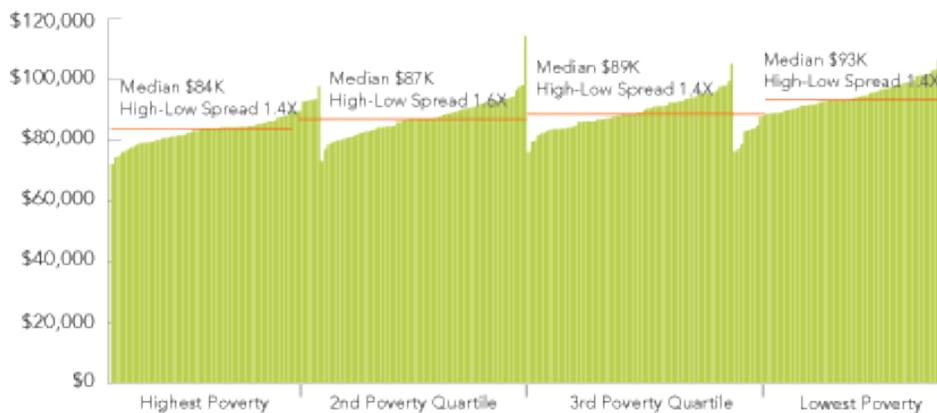
Analysis 6: Imbalances in teacher compensation among schools

Differences in teacher compensation across schools also can contribute to funding inequities. Some schools attract and maintain more senior staff, while others have turnover problems or a less experienced staff. Districts generally award staff positions based on the number of students regardless of the cost of the faculty member and then “charge” schools the district average salary rather than the actual cost for the teacher. The result: Schools with more experienced faculties receive a larger share of the district pie.

There is no research that correlates teacher experience (after the first three years) with instructional quality. Since what really matters is whether the quality of teachers is equitably matched to student and school needs, why is looking at actual teacher compensation important? It is important because regardless of the distribution of teaching quality across schools, differences in teacher compensation drive significant differences in spending across schools, often resulting in an underinvestment in higher-needs schools. Schools with especially high numbers of new teachers may need extra resources to support their induction process. Districts need to understand these variations and then decide whether to take actions to address them, including providing additional funding, staff, or support to those relatively under-funded schools.

Figure 6 shows wide variation in average teacher compensation across individual schools in one large district, with average salaries at some schools more than \$100,000 and at others just more than \$70,000. Schools with higher levels of poverty generally have lower average teacher compensation. In other words, because of seniority staffing preference, the neediest schools are more likely to be disadvantaged, in part because they are not always the most desirable workplaces in the district and veteran teachers can go elsewhere.

Figure 6: Average Teacher Compensation by School



In this district, the highest-poverty schools have lower average teacher compensation. This inequity can result from seniority staffing preference because the neediest schools are often considered to be the least desirable places to work.

Differences in teacher compensation drive significant differences in spending across schools, often resulting in an underinvestment in higher-needs schools.

Worksheet 6: Average teacher compensation by school

OBJECTIVE: Determine whether there are significant differences in average teacher compensation across schools and whether those differences are correlated with school need.

SUMMARY OF METRICS

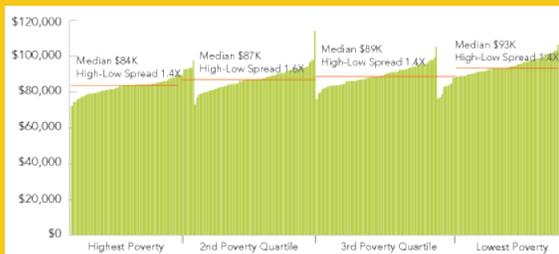
STEP 1: Determine K–12 average teacher compensation by school.

STEP 2: Define school need.

STEP 3: Understand distribution of teacher compensation based on school need.

REMINDER

Figure 6: Average Teacher Compensation by School



STEP 1: Determine K–12 average teacher compensation by school.

1. Using your district budget file, calculate average teacher compensation (salary and benefits, if possible) by school.

STEP 2: Define school need.

1. In this guide, we have defined school need by free and reduced-price lunch status and have distributed the district's schools across four quartiles.
2. For your district, choose the characteristic that is most often used to define school need.

STEP 3: Understand distribution of teacher compensation based on school need.

1. Based on how you have defined school need, split your schools into four quartiles.
2. Calculate the median teacher compensation for each quartile to identify differences by school-need category.
3. Determine the high-low spread (the difference between the highest average compensation and lowest compensation) by category to identify school-by-school differences within categories.

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 6: Imbalances in teacher compensation among schools

Questions to Consider

1. Are there large variations in average teacher compensation among schools in your district?
2. How do student demographics and performance correlate to teacher compensation levels, especially at schools with the highest and lowest teacher compensation?
3. Do you allocate extra resources to schools to compensate for inexperienced staff?
4. Do incentives exist for experienced staff to teach at schools with the greatest student need?

Take Action!

- **Reduce differences in teacher compensation.** As new federal reporting requirements highlight inequities across schools related to compensation, you can look for ways to distribute teacher expertise more strategically. Investments and incentives to encourage highly effective teachers to move to disadvantaged schools could include salary increases, leadership opportunities for areas of expertise, or more attractive working conditions, including additional collaborative planning periods, expert support, lower pupil loads per term, and stipends for extending the learning day.
- **Adjust for differences in teacher compensation.** In addition to creating a more even distribution of teachers across schools, districts should provide additional support to schools that do have a high population of lower-compensated, and therefore less experienced, teachers. Possible supports for schools with high numbers of new teachers could include additional coaches, smaller classes for new teachers, or additional professional development dollars.

Failing to review and manage ad hoc decisions collectively can result in significant inequities across schools.

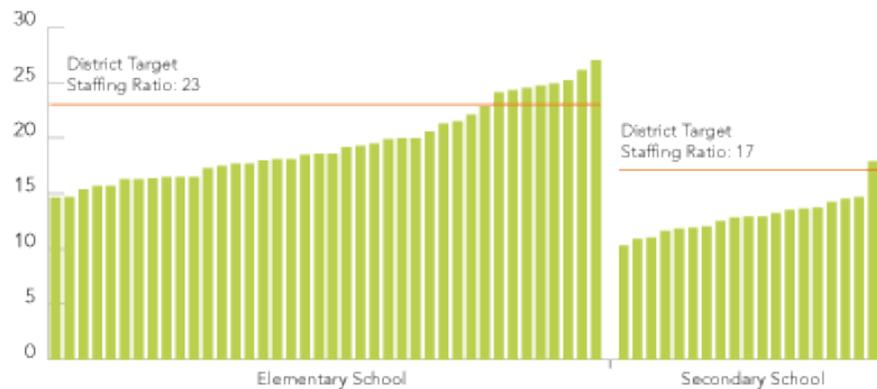
Analysis 7: Ad hoc exceptions to funding guidelines in response to individual school needs

Most districts make at least some ad hoc exceptions to staffing or funding formulas, adding specific staff or dollars to an individual school based on a particular need. For instance, a principal may request and receive an additional teacher when a specific grade or course would otherwise exceed class size guidelines. Although such decisions may make sense on a case-by-case basis, failing to review and manage these ad hoc decisions collectively can result in significant inequities across schools. Funding exceptions can unintentionally favor schools with the most savvy principals.

Figure 7 illustrates misalignments that resulted from funding exceptions made at individual schools in one urban district. Here the actual ratio of general education students to general education teachers falls short of district staffing guidelines at nearly all elementary and secondary schools. The official elementary school staffing ratio was 23:1, but the actual staffing ratio varied significantly, with some schools receiving enough additional teachers to reduce their ratio to 15:1.

A similar pattern exists in secondary schools, in which all schools but one received additional staff beyond the target level. District leaders may not be aware of all exceptions that are being made and therefore may not be targeting additional teaching resources to higher-needs students.

Figure 7: Actual Student-to-Teacher Ratio versus Target Staffing Rate*



In this district, the general education student-to-teacher ratio falls short of district staffing guidelines, resulting in richer staffing at most schools. This inequity can result from arbitrary funding exceptions made at individual schools.

**General education teachers*

Worksheet 7: Actual student-to-teacher ratio versus target staffing rate

OBJECTIVE: Determine whether class sizes are optimized based on available resources and district mandates.

SUMMARY OF METRICS

STEP 1: Determine K–12 students in general education classrooms enrollment by school type (e.g., elementary, middle).

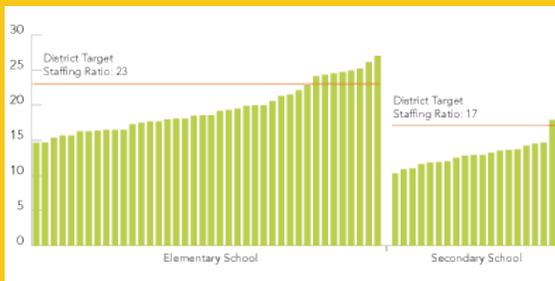
STEP 2: Determine number of general education teacher FTEs by school type.

STEP 3: Calculate general education student-to-teacher ratio by school type.

STEP 4: Compare student-to-teacher ratio to targeted staffing ratio by school.

REMINDER

Figure 7: Actual Student-to-Teacher Ratio versus Target Staffing Rate



STEP 1: Determine K–12 students in general education classrooms enrollment by school type (e.g., elementary, middle, high).

1. Using your district K–12 enrollment file, determine the total enrollment of K–12 students in general education classrooms for elementary, middle, and high schools.

(Note: If your district classifies schools differently, please use your classification.)

- a. This includes general education students and all special-needs students who may be mainstreamed and sit in a general education classroom (i.e., most often all special-needs students EXCEPT special education self-contained students).

- b. Specifically:

$$\begin{array}{r} \text{K–12 total enrollment} \\ - \text{K–12 special education self-contained enrollment} \\ \hline \end{array}$$

K–12 students in general education classrooms

STEP 2: Determine number of general education teacher FTEs by school type. (Use your district budget file.)

STEP 3: Calculate general education classroom student-to-teacher ratio by school type.

$$\frac{\text{Total enrollment of general education classroom students by school type}}{\text{General education teacher FTEs by school type}} = \text{General education classroom student-to-teacher ratio by school}$$

STEP 4: Compare student-to-teacher ratio to targeted staffing ratio by school.

1. Graph the range of the student-to-teacher ratio by school.
 - a. Compare the ranges against your state, contract, or district staffing requirements.
 - b. If you have different staffing targets for different school levels, be sure to evaluate the ratios accordingly.

QUESTIONS TO CONSIDER AND ACTION STEPS

Analysis 7: Ad hoc exceptions to funding guidelines in response to individual school needs

Questions to Consider

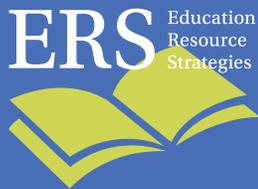
1. Do schools in your district have student-to-teacher ratios that differ significantly from your staffing guidelines?
2. Are those differences part of an intentional, targeted strategy?
3. If not, can those resources be redirected to higher-needs areas?
4. Are there opportunities to close process “loopholes” that allowed this situation to occur?

Take Action!

- **Tighten the process for granting and tracking ad hoc staffing exceptions.** If multiple people or departments in your district are authorized to grant ad hoc staffing exceptions, you are likely to experience unintentional differences in staffing equity. Schools should not receive more resources just because they have assertive principals. Ad hoc exceptions should be limited as much as possible and not be the result of principal maneuvering. You need to clearly communicate circumstances that warrant exceptions, limit the channels for authorization of ad hoc funding, and monitor all exceptions that are granted.

ABOUT ERS

ERS is a non-profit organization dedicated to helping urban school systems organize people, time, and money to create great schools at scale.



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