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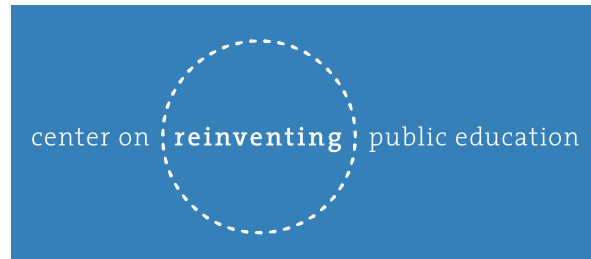
Lessons on Assessing the Costs of Small Schools: *Evidence from Denver*

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The University of Washington's Center on Reinventing Public Education studies major issues in education reform and governance to improve policy and decision making in K-12 education.

This brief reports on a portion of the findings available in a forthcoming research report. Please check the Center's website in the coming months for more information.



B R I E F

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Some research shows that the financial costs of operating small schools exceed that of large schools, since small schools lack the economies of scale that yield lower per pupil costs for larger schools.¹ Certain analyses have also suggested that small schools are more effective and thus amount to lower costs per graduate and/or reduced short term and long term social costs.² While relevant, the reality is that per pupil operational costs currently carry more weight in school board decisions about optimal school size.

With small schools gaining visibility in their promise for increased student performance, school leaders in Seattle and other cities are now asking just how much more they spend on small schools. While school cost

comparisons have generally relied on school budget figures, a complete picture of school funding requires examination of: 1) school budgets, 2) teacher and administrator salaries, and 3) central budgets (see box). In a recent study of Denver Public Schools (DPS) we analyzed each funding source and compared spending across 122 schools.³

School Cost Components

School budgets typically include the dollar amounts for staff and materials assigned directly to a school. The costs for fixed positions such as the principal are divided among the students, yielding lower per pupil costs as enrollment increases.

Salaries vary among schools. Real cost comparisons require an adjustment for the difference between real salaries and the district averages used in school budgets.

Central budgets provide supplemental funds and/or services above and beyond those reported in school budgets and can reflect 40-60 percent of the district's total operating expenditures. Accounting for how these costs benefit specific schools allows for more accurate school cost comparisons.

School size in Denver

DPS, like other districts, includes small schools by design and de facto small schools. Some are small because of facility limitations or enrollment patterns, while others were designed to be small. Most notably, DPS recently converted Manual High School into three small high schools, each with fewer than 450 students.

After rebuilding the district budget, recoding each line item by the schools served, and adjusting for real salaries, we computed a more accurate cost report for each DPS school.⁴ These costs were referenced against the district's average spending for each type of student (limited English proficiency, gifted, etc.) and relative spending levels for each school were calculated given its mix of students.

Higher expenditures in small schools

Some of DPS's small schools are its most expensive. As the chart indicates, the smallest schools at each level (elementary, middle, and high) cost more than the relative district average, even after taking into account the differing needs of students at each school. The three new small high schools in their start-up year do indeed cost, on average, 27 percent more per pupil than the district's larger high schools, which enroll over 1000 students each.

Yet, the relationship between cost and size is not linear and does not apply evenly to all schools. A deeper investigation of the cost components provides several insights for districts investigating the price tag of smaller schools.

1. Get the full cost picture

Most districts rely only on school budget totals to examine relative school costs and thus see only part of the picture. Looking separately at each cost component in DPS, we find that smaller schools do have higher per pupil school budgets, but that there is no significant link between school size and salary expenditures.

The impact of central budgets on smaller schools varied, suggesting the importance of including these funds in analyses. In certain smaller schools, per pupil expenditures from central budgets were higher, but not in all cases. For instance, a 180-student elementary school received school budget funds 18 percent higher than the district average, but when we take into account central budgets, we find that overall the district spends only 5 percent above average on this school. In four out of eight small elementary schools, the district spent less in per pupil terms from central budgets than the district average and thus the data from the central budgets partly offset the higher spending evidenced in the school budgets. Analysis of school budgets alone would have surfaced higher spending figures for each of these small schools.

2. Isolate "special program" costs

The higher costs of DPS's small schools did in some cases reflect the economies of scale lost from spreading fixed costs over a greater number of students. But, in other cases, higher costs were inflated by special program costs. For example, a Montessori magnet school was allocated \$313,600 in addition to its regular school budget for its special programs. When districts consolidate services for specific student needs in certain schools, these programs can affect a school's bottom line. DPS's elementary gifted program is housed in one small school and, therefore, drives costs that exceed the district's expenditures on gifted students elsewhere in the district.

3. Consider the cost of alternatives

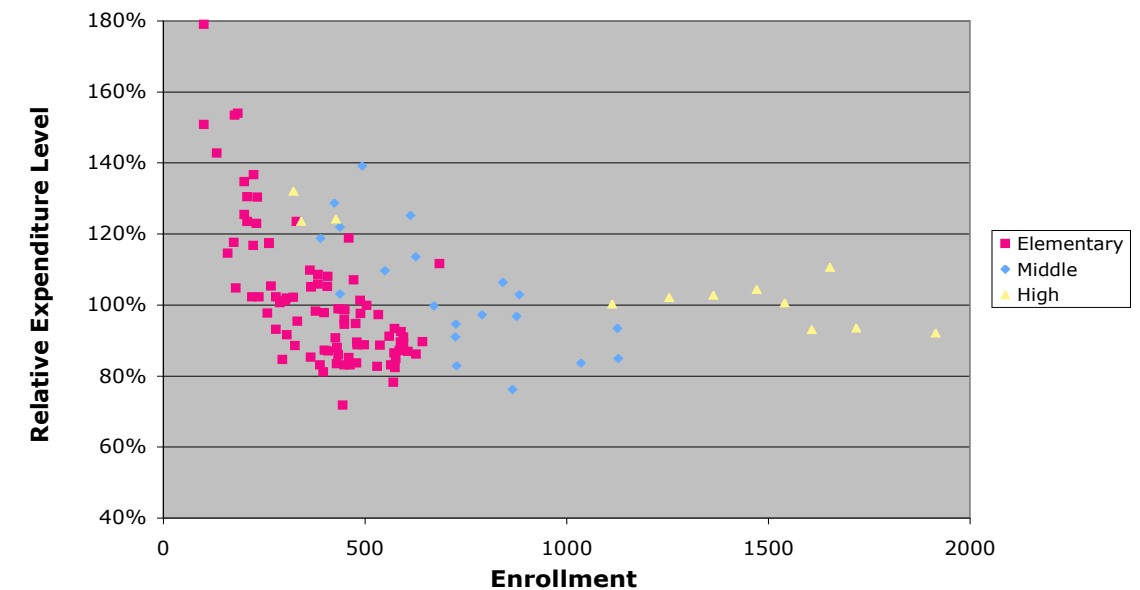
For districts struggling with the costs of small schools, it is imperative to consider the cost of alternatives, as a larger school is not always less expensive. As the chart illustrates, at each level, there are larger schools that spend more per pupil than the district average. In fact, DPS has a relatively small elementary school (258 students) that spends 2 percent less per pupil than the district average; its largest elementary school (685 students) costs the district 12 percent more per pupil.

Furthermore, at a certain point, central budget expenditures for large schools begin to increase, rather than decrease, in per pupil terms. In this analysis, at a pupil count of 1222 central office expenditures rose as enrollments increased. Although the distribution of school budgets and salaries did not reveal a similar tipping point, the finding is nevertheless important. It demonstrates that exclusion of central funding from small school cost analyses can affect understanding of the question: what size school is most cost effective?

4. Recognize that high costs result from district budgeting choices

The cost of small schools rises significantly when districts make line item allotments (for special programs) to these schools.

School Costs by Enrollment



Even district formulas that allocate resources in the form of fixed staff positions for each school (principal, librarian, etc.) force higher per pupil costs for smaller schools.

Districts interested in creating small schools as a reform strategy might consider the budget reform underway in Cincinnati. There, the district uses per pupil calculations to build school budgets, removing the fixed costs associated with each school and thus eliminating the economies of scale associated with larger schools. Furthermore, the district has done away with many special program allocations, instead granting schools greater flexibility to create special programs from their categorical and non-categorical per pupil allotments.

¹ See, for example, Stiefel, L., Berne, R., Iatarola, P. & Fruchter, N. (2000). High school size: Effects on budgets and performance in New York City. *Educational Evaluation and Policy Analysis*, 22, 27-39.

² See, for example, Lawrence, B.K., Bingle, S., Diamond, B.M., Hill, B., Hoffman, J.L., Howley, C., Mitchell, S., Rudolph, D., & Washor, E. (2002). *Dollars & Sense: The Cost Effectiveness of Small Schools*. Cincinnati, OH: KnowledgeWorks Foundation.

³ We excluded several alternative schools (including those serving pregnant teens and families, juvenile detainees, etc.) because of their atypical spending patterns.

⁴ Eighty-eight percent of the district's relevant operating expenditures were incorporated in school cost calculations. Specific costs and schools were previously excluded from the dataset used for this analysis. Facility, special education, transportation, security and early childhood education costs were not considered.