Getting to the Bottom of Where the Money Goes

A Student-Level Analysis of Resource Allocation

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A longstanding issue in school finance research and litigation concerns whether money spent on public education is equitably and efficiently allocated. Until relatively recently, scholars and policymakers could only analyze the equity and efficiency of dollars spent on public education using district-level averages of per-pupil expenditures (PPEs). Only in 2009 did federal legislation require districts to report school-level average teacher salaries as opposed to district-wide average teacher salary (Spatig-Amerikaner 2012). Though district-wide averages informed differences in dollars spent across districts, they did not inform how these dollars were allocated among schools, academic programs, or individual students.

Though more school-level fiscal data have become available over the last two decades, several scholars have lamented the lack of transparency in district budgets and the difficulty of determining student- and program-level expenditures. Picus (2000) noted that although federal, state, and local governments collectively spend hundreds of billions of dollars every year on public elementary and secondary education, we know "remarkably little" about how these funds are allocated to individual students or if they are allocated equitably (75). Roza, Guin, and Davis (2008) also concluded that, "A straightforward answer to the question of how much is spent on different student types" is needed (2).

This lack of knowledge stems from the limited availability of student-level data, the complexity of cleaning and combining raw district and school datasets, and the challenges of tracking expenditures through the system (Guthrie 2007; Roza et al. 2004). Detailed, comprehensive data that link individual students with their courses and teachers are needed to be able to analyze the equity of student-level expenditures, yet data are rarely collected and organized in this manner.

Thanks to [Education Resource Strategies](), I was able to obtain student-level data for all high school students (> 40,000) in a large urban school district and analyze students' course schedules and teacher salary information to allocate all teacher salary expenditures to individual students. Specifically, I calculated how much was spent on each student in terms of teacher salary expenditures (TSEs); this calculation also accounted for class sizes, the length and duration of courses, and teacher and student course loads.

Here's what I found:

The amounts we spend on individual students vary substantially for students within the same school.
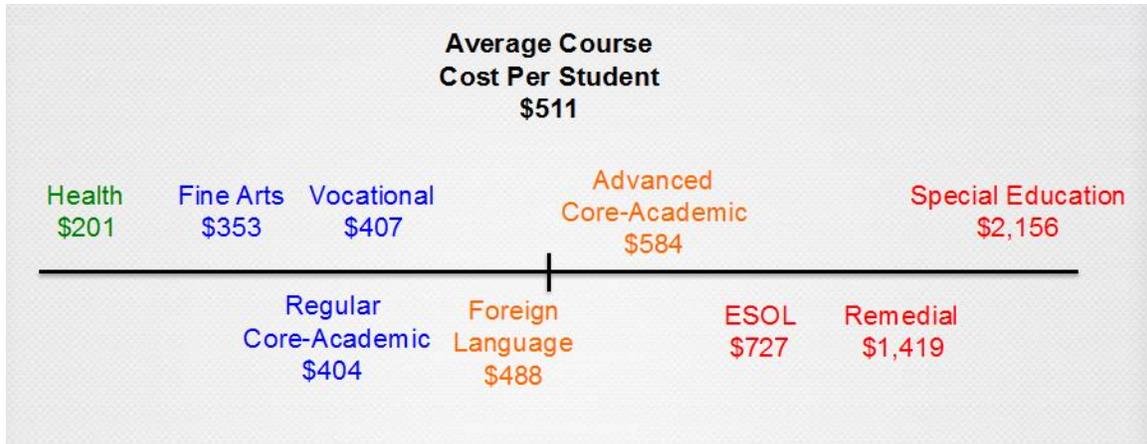
I figured that there would be some variation in per-pupil TSEs *within* schools, but I was surprised that the vast majority (86.5%) of variation in per-pupil TSEs in the district was due to within-school differences in spending, compared to only 13.5% of the variation due to between-school differences. In this district, teacher salaries did not vary dramatically between schools, which resulted in the vast majority of variation in teacher salaries (and per-pupil TSEs) resulting from within-school differences in spending. Hence, differences in spending for students within the same school may warrant our attention.

Higher achieving students get more resources.

The greatest number of resource inequities resulted from sorting of teachers and students according to student prior achievement. I found that the district spent around 15% more to educate high- and average-achieving students compared to the lowest achieving group of students. Schools that spent more on higher achieving students than low-achieving students did so due to a combination of more experienced and higher-paid teachers and smaller class sizes. This 15% difference in per-pupil TSEs was the average spending difference between higher and lower achieving students across all the high schools; within some individual schools, the differential between money spent on higher and lower achieving students was dramatic. For example, one school spent 44% more on teacher salaries for white and Asian students with high or average achievement than on African American students with low achievement.

Resource investment may not align with district goals.

These findings indicate that district leaders may be unaware of within-school resource allocation patterns. Per its school board policy, the district is committed to equity and willing to allocate more resources to students with the greatest needs, yet the district spends less on low-achieving students than on higher achieving students. Furthermore, across the district, more money is directed to advanced core courses than regular track core courses in three out of the four core academic subjects, and the advanced math courses are twice as costly as the regular math courses (see Figure below). Another goal of the district is to prepare its students for college or careers, but the district spends more on foreign language courses and other elective courses than on regular track academic or vocational courses that prepare the majority of students for college or careers. Given its stated goals, the district may need to better align its monetary resources with its priorities.

**Average Course
Cost Per Student
$511**

| Health | Fine Arts | Vocational | | Advanced Core-Academic | | Special Education |
| $201 | $353 | $407 | | $584 | | $2,156 |

| | Regular Core-Academic | Foreign Language | | ESOL | Remedial | |
| | $404 | $488 | | $727 | $1,419 | |

So what's the bottom line? The bottom line is that teachers and students are non-randomly sorted within high schools, and this sorting may result in schools spending inequitable and inefficient amounts of money to educate various students.

District and school leaders should continue to examine resource allocation patterns at a more nuanced level because they may not be currently aware of how their policies and practices translate into actual resources for individual students. Leaders may also wish to reconsider teacher assignment practices. Districts and schools should be continually working to develop human capital so that all teachers are effective and there are an adequate number of effective teachers to distribute across a variety of courses. Furthermore, as districts and schools move away from the static teacher salary and experiment with teacher performance pay, district and school leaders should create policies that incentivize experienced teachers to teach courses at all levels. Finally, leaders should consider how teacher and student sorting into classes creates small class sizes for some courses, resulting in high course expenditures per student. Leaders should flag courses with small class sizes and decide if investment in these courses contributes to school and district goals. More work needs to be done to support school and district leaders in addressing within-school inequities in resources and to identify the barriers that leaders continue to face.

For more information about the study or author, Rebecca Wolf, please contact her at betsyjwolf@gmail.com.

About the Author: *Rebecca Wolf is a newly minted Ph.D. who graduated from the University of Maryland (College Park) this past May. She is primarily interested in studying public K-12 education policy, equity, and reform.*