

# Assessing Adequacy in Education Spending

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## *A Summary of Key Findings from Pennsylvania and Philadelphia*

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**November 20, 2013**

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The authors thank Jennifer L. Moore and Kat Stein for valuable editorial assistance and members of the Moorman-Simon Public Schools Seminar for valuable feedback.

In this summary of preliminary findings from an ongoing study of school funding in Pennsylvania (PA), we first provide an overview of public school expenditures across the state as well as in high-poverty and low-achieving districts, including the School District of Philadelphia (SDP). We then calculate for the 2009-10 school year the adequacy gap, or the extent to which actual spending fell below the level necessary to provide adequate educational services to all students in a district. Statewide, we identify an adequacy gap of more than \$1 billion. For Philadelphia, actual spending fell short of its estimated adequate level of spending by \$5,478 per student. Despite this significant funding shortfall, the SDP does more, per pupil, with its current resources than its closest counterparts in terms of student poverty and achievement. Our findings suggest that, rather than a story of failure, the SDP is a story of possibility.

### Actual Public School Spending

How do per-pupil expenditures in Philadelphia compare to other PA school districts with similar student characteristics? We examine this question by first looking at funding on a statewide level, and then comparing spending in the SDP to PA districts with similar levels of poverty and districts with similar rates of academic achievement.

**Statewide spending.** Per-pupil spending across all districts in Pennsylvania during the 2009-10 school year was \$12,729.<sup>1</sup> Districts with the least and greatest levels of poverty, the fewest and most students, and the lowest and highest levels of student achievement, spent, on average, more per student than districts in the middle (i.e., the second and third quartiles) of the poverty, enrollment, and achievement distributions (see Figures 1-3).

**Spending among the poorest school districts.** In the 2009-10 school year, 77 percent of students at both SDP and its highest poverty counterparts qualified for free or reduced-price lunch, a widely accepted indicator of poverty. However, SDP spent \$1,891 *less* per student—\$11,417 compared to \$13,308—during the 2009-10 school year than these other schools (see Figure 4).

**Spending among the lowest-achieving districts.** Math and reading achievement scores for both SDP and its peer districts were similar, with SDP students performing slightly better in both subjects on the 2009-10 PSSA. The districts with the lowest math achievement spent, on average, \$13,837 per student—\$2,420 more per student than the SDP. In terms of reading, the lowest-performing districts spent, on average, \$13,660 per student—\$2,243 more per student than the SDP. In other words, the SDP generated slightly better student achievement outcomes than its peer districts while spending *less* per student during the 2009-10 school year (see Figure 5).

### The Adequacy Gap

Education expenditures must be sufficient to produce acceptable academic outcomes for all students, especially when educational needs vary across students. Students living in poverty, English-language learners (ELLs), and special education students all require a larger investment than other students in order to achieve academically. This means that districts with high numbers of high-need students require more funding. The difference between the funding that districts need for all students to achieve academically and the amount districts actually spend is called the *adequacy gap*.

To assess the extent of the gap between actual 2009-10 per-pupil spending and the amount of per-pupil spending necessary to ensure that all students meet state performance expectations, we

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<sup>1</sup> Statewide spending includes all districts (public and charter) with total student enrollment in 2009-10 of 1,785,993 students (source: US Department of Education, Common Core of Data).

calculated an adequate per-pupil funding amount for the 2009-10 school year for each district in Pennsylvania.<sup>2</sup>

**The statewide adequacy gap.** Statewide, the adequacy gap for all non-charter school districts (including the SDP) in 2009-10 was, on average, \$751 per pupil—suggesting that an additional \$1.26 billion was required to account for the difference between current per-pupil spending and an educationally adequate level of spending.<sup>3</sup>

This statewide average masks differences across districts by student poverty and academic performance. For the 25 percent of districts serving the largest percentage of poor students (with, on average, 57 percent of students receiving free or reduced-price lunch), the average adequacy gap in 2009-10 was \$1,253 per pupil. In contrast, the 25 percent of districts serving the lowest share of poor students (with, on average, 14 percent of students receiving free or reduced-price lunch) had an adequacy surplus of, on average, \$180 per pupil, suggesting that these low-poverty districts spent, on average, more per pupil than was necessary for their students to achieve academically.

For the lowest-performing 25 percent of districts (with, on average, 68 percent of students in grades 3-8 and 11 proficient or advanced on the 2010 math PSSA), the average adequacy gap was \$1,273 per pupil. Among the highest-achieving quartile of districts (with, on average, 88 percent of students advanced or proficient on the 2010 math PSSA), the adequacy surplus was, on average, \$50 per pupil, again suggesting that high-performing districts spent more per pupil than necessary for their students to achieve academically.<sup>4</sup>

**The adequacy gap for the SDP and its peers.** For the 24 highest-poverty PA districts (excluding SDP), with, on average, 77 percent of students receiving free or reduced-price lunch, the adequacy gap was, on average, \$1,881 per student. For SDP, the gap was \$5,478—nearly three times as large as districts serving the same share of economically disadvantaged students (see Figure 4). In other words, to provide adequate resources for its students to achieve academically, SDP required \$3,597 per student more than its peer districts required.

And yet, in terms of the actual achievement outcomes for these districts, SDP students performed slightly better in math and reading than students in peer districts. Specifically, for the lowest-achieving PA districts (excluding SDP), with, on average, 54 percent of students proficient or advanced on the math portion of the 2010 PSSA, the adequacy gap was, on average, \$1,396 per student. However, while 56 percent of SDP students achieved at proficient or advanced levels in math, the SDP's adequacy gap was approximately four times as large as these peer districts (see Figure 5).<sup>5</sup>

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<sup>2</sup> Our estimates of the adequacy gap for PA districts follows the methodology employed by the costing out study, a legislatively commissioned study on school funding in Pennsylvania (source: Augenblick, Palaich & Associates, Inc. *Costing Out the Resources Needed to Meet Pennsylvania's Public Education Goals*. December, 2007). Of the 500 PA school districts, data was available to generate an estimate of the adequacy gap for 491 districts.

<sup>3</sup> The \$1.26 billion represents the total adequacy gap for all 500 non-charter school districts in PA during the 2009-10 school year, with a total student enrollment of 1,682,891 students, including all pre-kindergarten, kindergarten, and grades 1-12 students enrolled in Pennsylvania public schools. In 2009-10, there were 1,785,993 students, including charter school students, enrolled in PA public schools (Source: US Department of Education, Common Core of Data).

<sup>4</sup> For reading achievement, the differences are even starker. Specifically, for the lowest-performing 25 percent of districts (with, on average, 63 percent of students in grades 3-8 and 11 proficient or advanced on the 2010 reading PSSA), the average adequacy gap was \$1,331 per pupil, while the highest-achieving quartile of districts (with, on average, 85 percent of students advanced or proficient on the 2010 reading PSSA), had an adequacy surplus of, on average, \$125 per pupil.

<sup>5</sup> For lowest-achieving PA districts (excluding SDP), with, on average, 47 percent of students proficient or advanced on the reading portion of the 2010 PSSA, the adequacy gap was, on average, \$1,603 per student. However, while 50 percent

## Conclusion

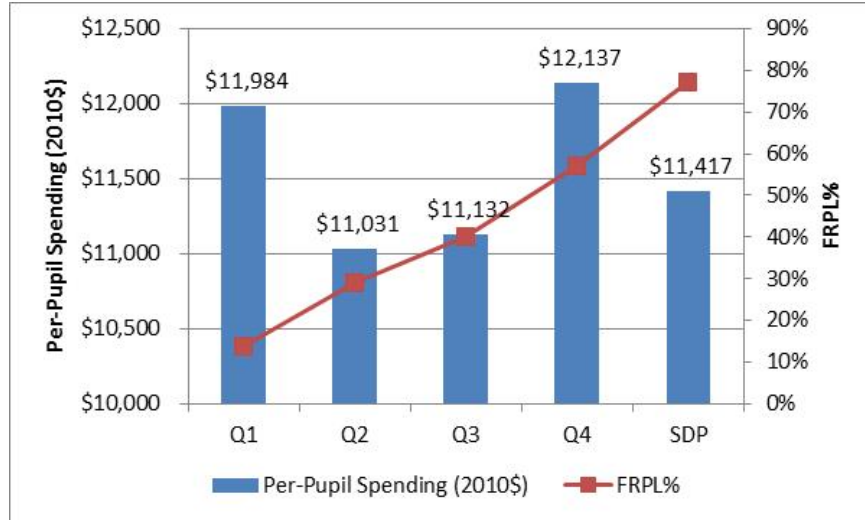
PA's \$1.26-billion adequacy gap is unevenly distributed among districts. The gap is much bigger, on average, for districts with the highest percentages of low-income and low-achieving students. The SDP is one such school, and yet, our findings indicate it is doing significantly more in terms of achievement than its nearest counterparts—and it is doing so with significantly less money per pupil. Although additional research is necessary to discover the reasons for these differences, our preliminary findings suggest that if the SDP were provided the adequate level of resources to educate the district's students, it could make great strides in improving the academic achievement for all of the district's students. In an era when Pennsylvania is searching for ways to do more with less at all levels of government, investing in the SDP and in Philadelphia's public school students appears to make good economic sense.

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of SDP students achieved at proficient or advanced levels in reading, the SDP's adequacy gap was approximately three-and-a-half times as large as these peer districts.

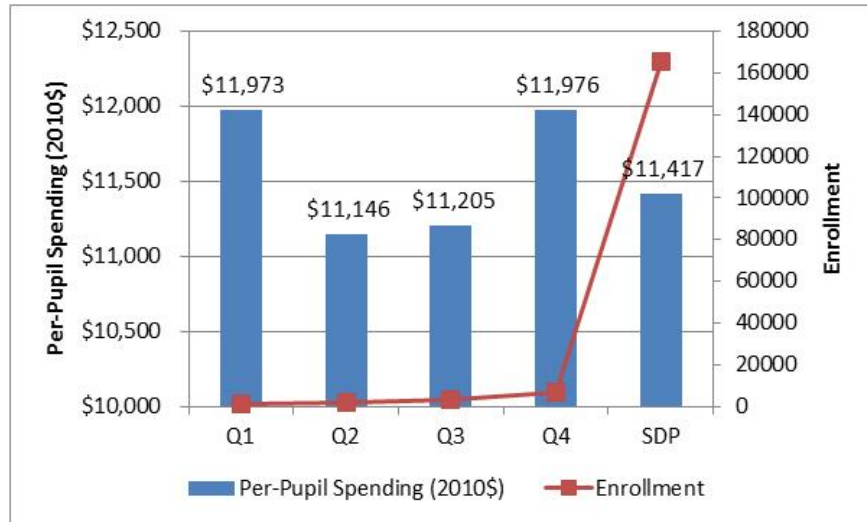
## Figures

**Figure 1. Expenditures in Pennsylvania, by District Poverty**



Notes. Authors' calculations from data retrieved from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD). Data are for the 2009-10 school year. Per-pupil spending is inflation-adjusted and reported in 2010 dollars, and includes instruction, instruction-related, support services, and other elementary/secondary current expenditures, but excludes expenditures on capital outlay, other programs, and interest on long-term debt. *FRPL%* is the share of a district's students receiving free or reduced-price lunch during the 2009-10 school year. *Q1* includes the lowest poverty districts (the 25 percent of districts with the lowest share of students in receipt of free or reduced-price lunch), and *Q4* includes the highest poverty districts (the 25 percent of districts with the highest share of students in receipt of free or reduced-price lunch). For *Q1* districts, the average share of students in receipt of FRPL is 14 percent; for *Q2* districts, the average share of students in receipt of FRPL is 29 percent; for *Q3* districts, the average share of students in receipt of FRPL is 40 percent; and for *Q4* districts, the average share of students in receipt of FRPL is 57 percent. The share of students in the School District of Philadelphia (SDP) in receipt of free or reduced-price lunch is 77 percent. There are 123 districts each in *Q1* and *Q3*, and 122 districts each in *Q1* and *Q4*. We exclude SDP from *Q4*.

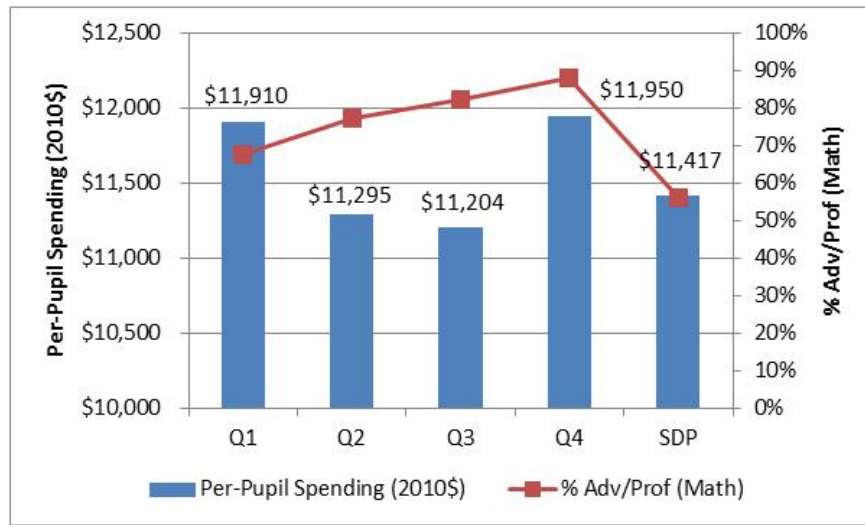
**Figure 2. Expenditures in Pennsylvania, by District Enrollment**



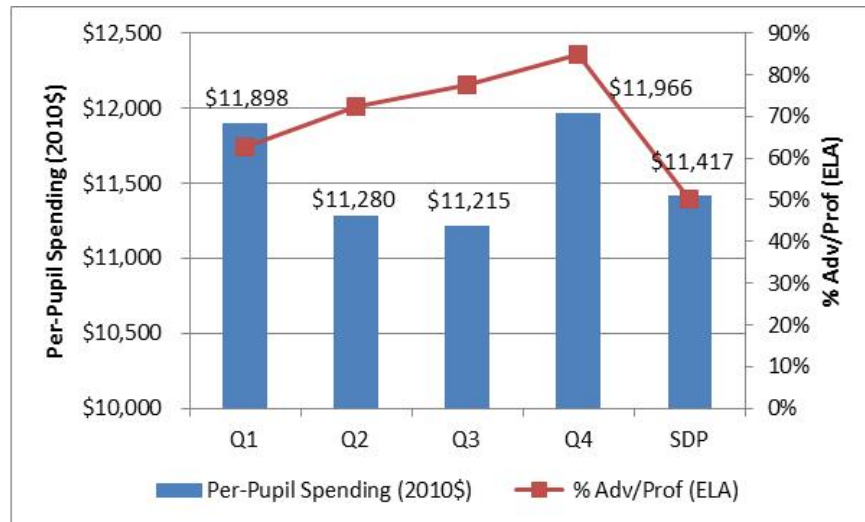
Notes. Authors' calculations from data retrieved from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD). Data are for the 2009-10 school year. *Enrollment* includes all pre-kindergarten, kindergarten, and grade 1-12 students enrolled in (traditional, non-charter) schools in the district during the 2009-10 school year. *Q1* includes the smallest districts (the 25 percent of districts with the lowest student enrollment), and *Q4* includes the largest districts (the 25 percent of districts with the largest student enrollment). For Q1, Q2, Q3, and Q4, there were an average of 914, 1736, 2918, and 6622 students, respectively, enrolled during the 2009-10 school year. There were 165,694 students enrolled in the School District of Philadelphia (SDP). There are 125 districts in Q1, Q2, and Q3, and 124 districts in Q4. We exclude SDP from Q4.

**Figure 3. Expenditures in Pennsylvania, by District Achievement**

**Panel A: Math Achievement**

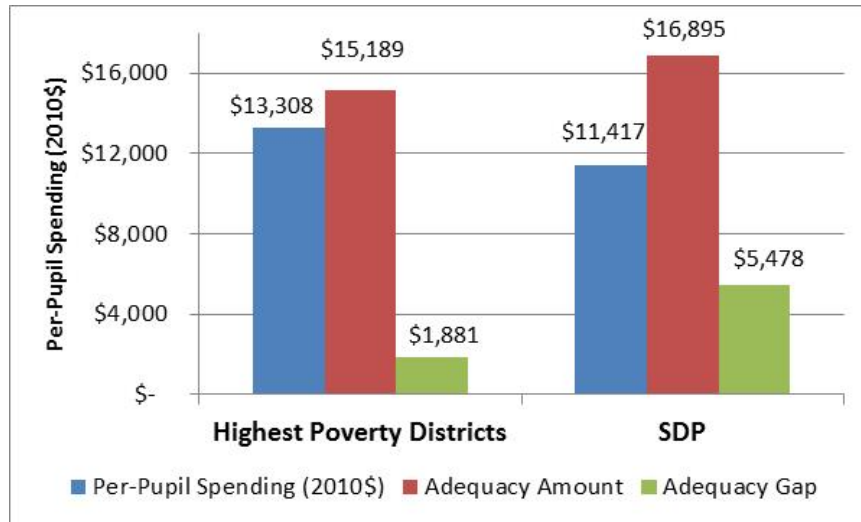


**Panel B: Reading Achievement**



Notes. Authors' calculations from data retrieved from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), and the Pennsylvania Department of Education ([www.portal.state.pa.us/portal/server.pt/community/school\\_assessments/7442](http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442)). Data are for the 2009-10 school year. *%Adv/Prof* is the proportion of a district's students (in grades 3-8 and 11) proficient or advanced on either the math or reading (ELA) portion of the 2009-10 Pennsylvania System of School Assessment. Q1 includes the lowest-achieving districts (the 25 percent of districts with the lowest proportion of students proficient or advanced in math), and Q4 includes the highest-achieving districts (the 25 percent of districts with the highest proportion of students proficient or advanced in math). For Q1, Q2, Q3, and Q4, 67.8, 77.3, 82.2, and 88.1 percent of students, respectively, were proficient on the math portion of the 2009-10 PSSA. In the School District of Philadelphia (SDP), 56.2 percent of students were proficient in math. For Q1, Q2, Q3, and Q4, 62.6, 72.4, 77.4, and 84.8 percent of students, respectively, were proficient on the reading portion of the 2009-10 PSSA. In the School District of Philadelphia (SDP), 50.0 percent of students were proficient in reading. For math, there are 122 districts in Q1, 123 districts in Q2, and 124 districts in Q3 and in Q4. For reading, there are 122 districts in Q1, 124 districts in Q2 and in Q4, and 123 districts in Q3. We exclude SDP from Q1.

**Figure 4. Expenditures in SDP and Peer Districts, by District Poverty**

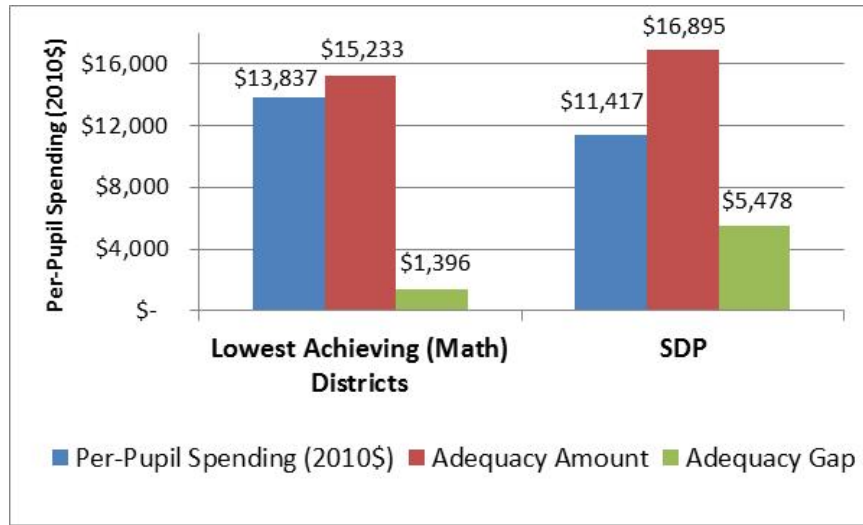


Notes. Authors' calculations from data retrieved from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD). Data are for the 2009-10 school year. Per-pupil spending is inflation-adjusted and reported in 2010 dollars, and includes instruction, instruction-related, support services, and other elementary/secondary current expenditures, but excludes expenditures on capital outlay, other programs, and interest on long-term debt. The *Highest Poverty Districts* (excluding the SDP) include the 24 districts serving the largest proportion of students in receipt of free or reduced-price lunch during the 2009-10 school year, with an average FRPL% of 77 percent. Only nine PA districts served a larger share of students in receipt of free or reduced-price lunch than the SDP (with 77 percent of students in receipt of free or reduced-price lunch) in the 2009-10 school year.

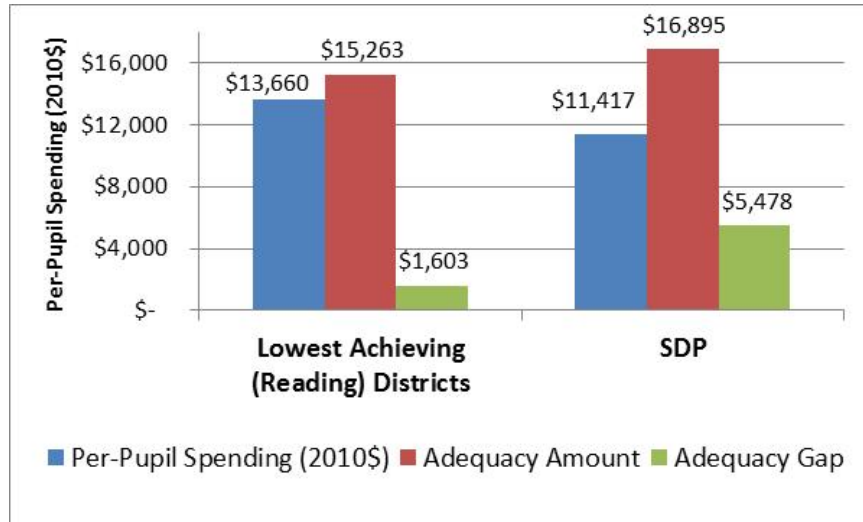


**Figure 5. Expenditures in SDP and Peer Districts, by District Achievement**

**Panel A: Math Achievement**



**Panel B: Reading Achievement**



Notes. Authors' calculations from data retrieved from the U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD) and the Pennsylvania Department of Education ([www.portal.state.pa.us/portal/server.pt/community/school\\_assessments/7442](http://www.portal.state.pa.us/portal/server.pt/community/school_assessments/7442)). Data are for the 2009-10 school year. Per-pupil spending is inflation-adjusted and reported in 2010 dollars, and includes instruction, instruction-related, support services, and other elementary/secondary current expenditures, but excludes expenditures on capital outlay, other programs, and interest on long-term debt. The lowest-achieving districts (excluding the SDP) include the 23 lowest performing districts with, on average, 53.7 percent of students (in grades 3-8 and 11) proficient in math and 46.6 percent in reading (ELA) on the 2009-10 Pennsylvania System of School Assessment (PSSA). In the SDP, 56 percent of students were proficient in math and 50 percent in reading.