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# Are Friends of Schools the Enemies of Equity?

## The Interplay of School Funding Policies and External Fundraising

**By Lisa Barrow, Sarah Komisarow, and Lauren Sartain**

**ABSTRACT:**

School districts across the US have adopted funding policies designed to distribute resources more equitably across schools. Concurrently, schools are increasing external fundraising efforts to supplement district budget allocations. We document both funding policies and fundraising efforts in Chicago Public Schools. We find that adoption of a weighted-student funding policy reallocated more dollars to schools with high shares of students eligible for free/reduced-price lunch, creating a policy-induced per-pupil expenditure gap. Further, almost all schools raised external funds over the study period, with most dollars raised concentrated in schools serving relatively affluent populations. We estimate that external fundraising offset the policy-induced per-pupil expenditure gap between schools enrolling the lowest and highest shares of FRL-eligible students by 23-35 percent.

**Keywords:** education finance, public school, school funding, non-profits, fundraising, equity

JEL codes: I220, I280, H750

* Barrow: Federal Reserve Bank of Cleveland, 1455 East 6th St, Cleveland, OH 44114 (email: Lisa.Barrow@clev.frb.org). Komisarow: Sanford School of Public Policy, Duke University, 201 Science Dr., Durham, NC 27708 (email: sarah.komisarow@duke.edu). Sartain: University of North Carolina at Chapel Hill School of Education, 107 Peabody Hall, CB 3500, Chapel Hill, NC 27599 (email: lsartain@ unc.edu). The authors thank the staff at Chicago Public Schools, particularly Sarah Dickson and Lauren Fihe, for helping us better understand the policy context. We also thank participants at the Association for Education Finance and Policy annual conference, UNC education inequality seminar, the Chicago Economics of Education Research spring conference, and Triangle Economists in Applied Microeconomics. This paper also benefited from conversations with Thad Domina, Nelson Gerew, and Claire Mackevicius and coding assistance from Eric Monson. The views expressed here are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Cleveland or the Federal Reserve System. Any errors are ours.

# I. INTRODUCTION

Over the past twenty years, public school districts in the United States have adopted school budgeting approaches that aim to distribute financial resources more equitably. These policies include reforms that allocate more funding to schools serving larger shares of students from disadvantaged backgrounds, recognizing that these schools require greater financial resources in order to provide adequate educational programs Traditionally, school budgeting policies have centralized power in school districts with central office staff projecting student enrollment at each school and then allocating teaching positions based on those projections. In contrast, more recent policies like weighted-student funding[1] apportion funds (not positions) to schools directly based on total student enrollment and characteristics of the students they serve. This model often gives school principals more autonomy over how to allocate spending across categories (e.g., teacher and staff, instructional materials, or technology) to best meet student needs. It also makes the link between student characteristics (e.g., family income, special education status, English learner (EL) status, homelessness, or achievement levels (Levin et al., 2019)) and dollars allocated to schools more transparent. Dollars follow students with the recognition that some students have more need than others and that meeting those students' needs is more resource intensive. Although relatively uncommon for many years, weighted-student funding is now used in some form in more than 30 large US school districts (Roza et al., 2021).[2]

As weighted-student funding and other equity-based school budgeting approaches have grown in prominence, so too have the extent and magnitude of private dollars flowing into K-12 public schools through external fundraising. Some of these external fundraising efforts are exceptionally organized, sophisticated, and impressive in their scale; they are far above and beyond the quintessential bake sale. Private external fundraising in K-12 public schools encompasses a

variety of activities carried out by a wide range of organizations, including school-affiliated nonprofits, parent teacher associations (PTAs), and other local groups (e.g., nonprofits, school foundations, and businesses). Despite previous difficulties documenting and quantifying the flow of externally fundraised dollars into K-12 public education (Hansen et al., 2015), a growing scholarly literature and recent work by investigative journalists shed new light on this area. Researchers and journalists have documented the unequal flow of external fundraising toward relatively more advantaged public schools, and even more affluent students within those schools (Brown et al., 2017; Cope, 2019; Murray et al., 2019; Nelson and Gazley, 2014). Investigative journalism has also illuminated the complicated and unequal power dynamics that private financial contributions and external fundraising can engender within public school systems and individual school communities (Joffe-Walt, n.d.; Karp and Moore, 2022).

In this paper, we bring together data from several unique sources to explore two phenomena: adoption of weighted student funding and more expansive school fundraising efforts. Do external school fundraising efforts undo, or dampen, the effects of policies that aim to distribute funds equitably to schools within a district? We examine these issues in the context of Chicago Public Schools (CPS), a large urban school district that reformed its school-level budgeting process during the 2013-14 school year and that is home to an extensive network of school-affiliated nonprofits that engage in external fundraising.

We present the results in three parts. First, we document the relationship between school-level per-pupil expenditures and the school-level share of students eligible for free/reduced-price lunch (FRL), as well as how that relationship evolved with the introduction of a weighted-student funding model in the district. We show that the average difference in per-pupil expenditures at schools serving high (80-100 percent) versus low (0-20 percent) shares of FRL-eligible students

increased nearly seven-fold (from $213 to $1,629) after the district's school-level budgeting reform, moving from near parity to a much higher level of per-pupil funding in schools serving students with fewer resources relative to those serving more financially advantaged students. Second, we show that external fundraising occurred in some form at nearly all CPS elementary schools during the period we study. There were relatively few schools that raised considerable financial resources, however, and those schools served relatively affluent students. The median dollars raised at schools with low shares of FRL-eligible students was $303 per pupil compared with $33 per pupil at schools with high shares. We also show that the schools raising the most money spent most of their fundraised dollars on areas most closely linked to student achievement: school personnel and instruction. Third, we explore the extent to which external fundraising dampened the district's equity-based budgeting objectives. We show that externally fundraised dollars narrowed the average difference in per-pupil expenditures at schools enrolling the lowest and highest shares of FRL-eligible students by 23-35 percent. We conclude this paper by discussing the policy relevance of our findings and by reviewing examples of district-led efforts to distribute externally fundraised dollars more equitably across schools.

Our paper contributes to three strands of the literature in economics and education. First, we extend the existing literature on external fundraising in K-12 public schools where researchers have documented fundraising done by individual groups like PTAs, nonprofit organizations, booster clubs, and online fundraising without considering all of these external funding sources together (Elpus and Grisé, 2019; Good and Nelson, 2021; Meer and Tajali, 2023; Murray et al., 2019; Wolff and Carlson, 2021). By combining multiple external fundraising sources in a unified framework, our work combines previously disparate strands of the literature to paint a more complete picture of external fundraising in K-12 public schools.

Second, our paper adds to the growing literature on distributional issues related to external fundraising in K-12 public education, which finds that external fundraising tends to exacerbate multiple dimensions of educational inequality. Murray, et al. (2019) document that racial/ethnic diversity at the school level is negatively correlated with the presence of a high-revenue affiliated nonprofit organization (i.e., a nonprofit that raises more than $50,000 in annual revenue). Good and Nelson (2021) find that about 10 percent of public elementary schools in the School District of Philadelphia have an associated school-affiliated nonprofit, but that these schools were typically located in more affluent and more white parts of the city. Qualitative research suggests that although affluent families can bring significant resources into public schools, ensuring that those funds are spent in ways that benefit all students – and not just toward the specific interests of more affluent parents – requires intentional efforts (Cucchiara and Horvat, 2009; Murray et al., 2020). Posey-Maddox (2016) finds that while there are strong norms for middle- and upper-class parents to articulate goals of equity, fundraising efforts often take place in a small subset of affluent schools, thereby potentially inducing inequity in resource allocation across schools within a district. We add to this work by further documenting large disparities in external fundraising based on school-level characteristics in another urban district context.

Finally, our work extends the traditional across-district comparisons in school spending that dominate the school finance reform literature (e.g., Jackson et al., 2016; Lafortune et al., 2018) to consider spending inequality across schools within a single district. Using new data on school-level expenditures to document how school spending differs within a district, we offer new insights into how policy (e.g., weighted-student funding) affects inequality in school spending.

Taken together, the findings from this paper have significant implications for school funding policies, as well as practices for allocating resources to schools from a district perspective.

For example, some districts are implementing policies or considering ways to account for the fact that fundraising efforts are typically concentrated among schools serving more affluent students. One practice that some districts are using is the redistribution of school-affiliated nonprofit-raised resources across all schools. Our paper suggests that these efforts to centralize some portion of individual schools' fundraised resources and then to redistribute those dollars across all the other schools in the district would not result in a meaningful increase in per-pupil funding at the school level. That is because, at least in districts like CPS, most fundraising occurs at a relatively small set of schools. At the same time, there are concerns that redistribution practices could discourage parent and community investments in their own schools. Districts may need to consider alternative options for ensuring schools are funded adequately and equitably, taking into account the extent of external resources that benefit individual schools.

## II. BACKGROUND

### A. The School Budget Process in Chicago Public Schools

During the period we study (2011-12 to 2018-19), CPS changed the way the district allocated funds to schools from a centralized "position-based" system to a weighted-student funding approach called student-based budgeting (SBB) that gave more autonomy to schools. Prior to the 2013-14 school year, "General Funds" – the bulk of funds that supported basic instructional programs in the district – were distributed to schools using position-based budgeting. This meant that positions such as teachers, assistant principals, school counselors, clerks, librarians, and art/music teachers were allocated to schools based on enrollment (Appendix B of the Chicago Public Schools, 2012; Revuluri et al., 2020). Prior to its replacement, position-based budgeting had long been criticized for its lack of transparency, complexity (there were multiple formulas that

depended on school level and type), top-down approach, and for the year-to-year volatility in school staffing and funding that could be induced by relatively small changes in student enrollment (The Chicago Public Education Fund, 2015).

Beginning with the 2013-14 school year, CPS shifted to distributing General Fund dollars (rather than positions) to schools based on weighted student enrollment, where the weights depended on each enrolled student's grade level and the percentage of time spent in a general education classroom (versus receiving specialized instruction in a pull-out setting). Some of the explicit goals of the district's move to SBB were increased transparency, principal autonomy and flexibility over the school budget, year-to-year predictability (i.e., reduced school-level budget volatility), and equity. Following passage of the budget in the first year of SBB, CPS issued the following statement, "Student-based budgeting provides our diverse learning students a more fair and equitable funding model that meets each student's unique needs… This is an investment CPS has committed to in order to ensure that these students have all the support they need to thrive in the classroom" (Targeted News Service, 2013).

Just as was the case under the position-based budgeting regime, schools received supplemental funds based on students' EL status, special education status, and family income.[3] Under SBB, however, once funds were allocated to schools (by formula), school principals were allowed to spend the money for teacher and staff positions, programming, curriculum, etc., in whatever way the principal determined would best meet the school's needs. The Chicago Public Education Fund (2015) estimated that the move to SBB shifted the total share of school-level resources under the direct control of the school principal from around 17 percent to over 44 percent.

The implementation of SBB occurred at a difficult time for the district. In response to declining student enrollment, CPS closed 49 elementary schools in May 2013, claiming cost savings as the primary reason (Gordon et al., 2018). The district was also mired in other fiscal issues, including increases in debt service and pension obligations (Fitzpatrick, 2013b), and the budget reform was opposed by the Chicago Teachers Union (CTU) (Schmidt, 2013). To ease the transition from position-based to student-based budgeting, CPS offered exemptions and adjustments to the formula (e.g., CPS did not reduce funding for schools where actual enrollment fell below projections) (Fitzpatrick, 2013a, 2013b; Golab, 2013). Prior to the 2015-16 school year, these adjustments were phased out, although the district regularly adjusted the formula based on federal, state, and local revenues (Perez, 2015, 2016; Targeted News Service, 2015).

Although both position-based budgeting and SBB had mechanisms to provide more money to schools serving students who were economically disadvantaged, enrolled in early grades, enrolled in special education, or ELs,[4] a key difference between the systems was the amount of flexibility and autonomy that principals had in deciding how to allocate the funds to best serve their students. However, SBB may have also effectively increased school budgets for schools that on average employed less-experienced teachers, thus giving these schools additional funds to improve student outcomes. Based on national data, schools with less-experienced teachers, on average, tend to serve higher shares of students from low-income families (*National Teacher and Principal Survey (NTPS)*, n.d.). Thus, while the CPS SBB model for distributing general funds did not explicitly target low-income students, it could have increased per-pupil funding in schools serving higher shares of low-income students because more-experienced teachers typically earn more than less-experienced teachers.[5]

## B. External Fundraising

Multiple types of organized school-affiliated groups directly engage in or support external fundraising activities on behalf of schools in CPS. Some examples of these organized groups include PTAs, local school councils (LSCs), and other 501(c)3 nonprofit organizations affiliated with individual schools (typically called "Friends of [School Name]" in Chicago). The organizations engage in external fundraising activities in addition to individual efforts by parents, teachers, and principals.

External fundraising allows school-affiliated groups to help schools pay for additional teacher positions, sponsor art or other enrichment programs, or fund capital projects like revitalized playgrounds, auditoriums, and greenhouses. In this way, external fundraising can augment a school's programmatic and extracurricular offerings and has the potential to buffer schools against year-to-year fluctuations in local, state, and federal revenues for school funding. In addition to allowing schools to augment their district-allocated budgets, external fundraising is also subject to fewer district rules and regulations. That is, there are no limits to how much a school can generate in external dollars, and schools have discretion over how to spend the money.[6]

School-affiliated groups and individuals raise external funds to supplement official district-allocated funds through a variety of efforts and strategies. Some examples include grant writing to foundations and hosting large events like auctions, galas, or fundraising drives. Teachers may bring in external funds for specific projects or supplies through web-based fundraising platforms such as GoFundMe, Amazon Wishlists, or Donors Choose, some of which will match individual contributions with donations from corporations or other large donors. Individual schools can also raise money through leasing/rental of their facilities (e.g., parking lots, auditoriums, or swimming pools) and through cell phone towers placed on top of their buildings, although the availability of

these strategies may depend on factors outside the school's control such as the proximity of their parking lot to professional athletic facilities or having ample roof space.

Alongside external fundraising activities carried out by and benefitting individual schools, CPS has its own charitable foundation, the Children First Fund, where donors give money to support district-wide initiatives rather than individual schools. Examples of initiatives include investing in technology for STEM schools, scholarships, and funding for school arts programs (Children First Annual Report 2019, 2020). The foundation often makes grants to individual schools directly in support of the district's efforts. Corporations and other local community foundations are among the largest donors to the Children First Fund, which had nearly $10 million in revenue in 2019 (Children First Annual Report 2019, 2020).

## III. RESEARCH QUESTIONS, DATA SOURCES, AND SAMPLE

### A. Research Questions

In this paper, we address the following research questions:

1. Did district-allocated per-pupil funds across CPS elementary schools vary by school-level FRL eligibility, and how did this relationship change with the district's adoption of a weighted-student funding policy? Did the policy change result in reallocation of per-pupil funding across schools?
2. What modes of external fundraising did CPS elementary schools use? How much money did schools raise? What was the relationship between school-level FRL eligibility and school fundraising? How did schools spend externally fundraised dollars?

3. How did the amount of externally fundraised dollars compare to the district's per-pupil funding allocations? Did school fundraising in more affluent schools offset any policy-induced increase of resources to schools serving large shares of FRL-eligible students?

## B. Data Sources

Our work draws on data from four sources: (1) CPS Budget Books, (2) Internal Revenue Service (IRS) information on the revenues of school-affiliated nonprofits, (3) project and donation information from Donors Choose, and (4) demographic and enrollment information for CPS schools from the Common Core of Data (CCD) and CPS public-use data. We describe the data in more detail below and in Appendix B.

We first obtained school-level budget data covering the 2011-12 to 2018-19 school years from publicly available CPS Budget Books. These budget books report total fiscal year-ending budgets for each CPS school.[7] For the subset of school years 2013-14 to 2018-19, each school's budget was further broken down into 24 separate funds (i.e., funding sources). Some examples of these funds include Federal Special Education IDEA Programs (Fund 220), NCLB Title I Regular Fund (Fund 332), and Supplemental General State Aid (Fund 225) (please see Appendix B for a complete list).

Of particular interest for this paper is the fund called "School Special Income" (i.e., Fund 124). This fund "accounts for private foundation grants and donations that schools … secure on their own and revenues that schools generate for school-specific functions" (Chicago Public Schools, 2016). Fund 124 can be further divided into two categories: "School Internal Accounts" and "Corporate, Foundation, and Facilities." School Internal Accounts is the budget line-item where externally raised dollars from the school-affiliated nonprofits enter the school-level budget data. We place all other school-generated funds, such as facility rental fee income and corporate

or foundation grants, in the Corporate, Foundation, and Facilities category. We consider Fund 124 to be an aggregate of external fundraising at the school level. Importantly, these school-generated funds are available to the school on top of SBB funds.

Second, we used data extracted from 990 and 990-EZ tax forms filed by school-affiliated nonprofits. These data came from the Urban Institute's National Center for Charitable Statistics (NCCS) and the IRS. Using the names and addresses from IRS Business Master Files (BMFs), we matched 501(c)3 nonprofit entities – and information on their revenues – to CPS schools. The data from tax filings roughly corresponded to fundraising activities during the 2011-12 to 2018-19 school years. Some examples of nonprofits include entities like PTAs and Friends of School organizations. We note that registered nonprofits are only required to file a 990-EZ if their revenues are between $50,000 and $200,00 during the fiscal year and a 990 if revenues are above $200,000. In the data, we observe that about one-third of the school-affiliated organizations that filed had revenues below $50,000.[8]

Third, through a data-sharing agreement with Donors Choose, we obtained information on funded projects from Donors Choose. Donors Choose is a free web-based platform that allows teachers to initiate fundraising projects for their classrooms. These data from Donors Choose contain information on funded teacher-initiated projects for CPS schools during the 2015-16 to 2018-19 school years. We collapse this information to the school-by-year level.

Finally, from the CCD of the National Center for Education Statistics and CPS public records, we obtained data on student demographic characteristics, enrollment levels, and school characteristics. From the CCD, we use total school enrollment and enrollment by grade level, race/ethnicity, and FRL-eligibility status, as well as school characteristics such as school address.

We supplement CCD data with CPS data on the school-level enrollments of EL and special education students.

### C. Analytic Sample

We merged all data sources for 403 traditional elementary schools in the Chicago Public Schools (CPS) that were continuously open between the 2011-12 and 2018-19 school years. Using the four school years for which we have data from all sources enumerated above (school years 2015-16 through 2018-19), we created a cross-sectional dataset containing averages of all variables at the school level. This averaging smooths out year-to-year fluctuations in school budgets, fundraising, and student characteristics.

The percentage of students eligible for FRL[9] at the average CPS school is 84 percent. Most CPS schools serve a high concentration of students from low-income backgrounds. Specifically, at 75 percent of CPS schools, more than 80 percent of students are eligible for FRL, while only 5 percent of CPS schools have fewer than 20 percent of students eligible for FRL. In the analyses that follow, we focus on comparisons of CPS school-level budgets and schools' external fundraising by the school's FRL-eligibility rate. Specifically, we divided schools based on their average school-level FRL-eligibility rate between the 2015-16 and 2018-19 school years into the following bins: 0-20% (n=17), 21-40% (n=20), 41-60% (n=25), 61-80% (n=35), and 81-100% (n=306).

While FRL eligibility is an imperfect measure of student socioeconomic status, we use it as a central measure in our research questions because it is uniformly available at the school level over our sample period; it is one of the inputs for distributing funds to schools in CPS (described in more detail in Section II.B); and it is strongly correlated with other community characteristics at the school level, including median household income, share of households with income below

the federal poverty level, and the unemployment rate (see Appendix Figure A5).[10] Finally, families whose children qualify for FRL are likely less able to afford large financial contributions to schools arguably making it an important characteristic for understanding and documenting disparities in external fundraising across schools.

Table 1 reports summary statistics overall and by FRL-eligibility bin for our sample; school characteristics are in Panel A, and per-pupil expenditures and key school funding sources are in Panel B. As shown in the first column of Table 1, most students in our sample schools are Black (47 percent) or Hispanic (38 percent), 18 percent are ELs, and 14 percent are receiving special education services. Roughly 12 percent of the schools are magnet schools drawing students from outside their immediate neighborhood, and the average school size is 563 students, but enrollment ranges from 129 students to over 1500 students. Schools in the lowest (column 1) and highest (column 5) FRL bins differ statistically in terms of race and ethnicity, share of ELs, and share receiving special education services. In particular, schools in the lowest FRL bin serve lower shares of Black or Hispanic students, EL students, and special education students. Notably, however, they are not statistically different in terms of magnet status or enrollment. (See column (6) of Appendix Table A1.)

Per-pupil expenditures shown in Table 1 Panel B average roughly $10,000 in real 2018 dollars but range from around $6,600 to more than $18,000 per year. These expenditures include the school-generated funds that are captured by School Internal Accounts and Corporate, Foundation, and Facilities funds. While these funds average only $63 and $41 per pupil, respectively, some schools in some years are generating as much as $1,176 per pupil from these sources. Donors Choose funds average $8 per pupil, and our IRS 990 data indicate that school-

affiliated nonprofit organizations raise an average of $32 per student with revenues up to about $900 per student for some schools.

## IV. RESULTS

### A. Research Question 1: The Evolution of the Relationship Between District-Allocated School Budgets and School-Level FRL-Eligibility Rates

The CPS transition to SBB coincided with an increase in per-pupil funding for schools serving higher shares of FRL students. Figure 1 depicts average per-pupil expenditures for five bins of school-level FRL eligibility: 0-20%, 21-40%, 41-60%, 61-80%, 81-100%.[11] Average per-pupil expenditures in the highest and lowest bins gradually diverge from one another (i.e., "fan out") over this period, with both decreases in per-pupil expenditures in the lowest eligibility bin and increases in the highest bin. In the two school years preceding SBB (2011-12 and 2012-13, depicted to the left of the vertical solid line), average per-pupil expenditures across FRL-eligibility bins were very similar. In the two transitional school years (2013-14 and 2014-15), CPS implemented adjustments and "hold harmless" provisions (discussed in more detail in Section II.B) to ease the transition between budgeting systems. In these school years, the difference in per-pupil expenditures between the lowest and highest FRL-eligibility bins remained fairly small. After this period of transition, however, average levels of per-pupil expenditures across bins fanned out further (depicted to the right of the vertical dashed line). Average per-pupil expenditures remained relatively constant at first then increased at schools with the highest share of FRL-eligible students (81-100 percent eligible). At the same time, average per-pupil expenditures declined and then remained relatively constant at schools with the lowest share of FRL-eligible students (0 to 20 percent eligible).

While examining the evolution of per-pupil expenditures over time by FRL-eligibility group is not a causal strategy for identifying the effect of SBB on school-level funding, we find that other school-level characteristics are not changing over time in ways that likely affected per-pupil spending. In Appendix Figure A8, we present average shares of students by race and ethnicity, special education status, and EL status and average total enrollment over time and by FRL-eligibility bin. In particular, the shares of special education and EL students – both student characteristics that are associated with additional funding allocations to a school – were smooth and unchanging over this period.

Table 2 presents estimated means (standard errors) to formalize the visual relationships depicted in Figure 1. Panel (A) shows average per-pupil expenditures for the full sample (N=403) of CPS elementary schools in the pre-SBB period (column 1), transitional period (column 2), and SBB period (column 3). Column (4) displays the difference in means between the pre-SBB and SBB periods. Panel (B) then presents average per-pupil expenditures for the same time periods, disaggregated by school-level FRL-eligibility bins.

Three facts emerge regarding the evolution of per-pupil expenditures over this time period: First, average per-pupil expenditures at the school level increased by about $400 overall as shown in Column (4) of Panel (A). Second, average per-pupil expenditures increased the most in schools serving the highest shares of FRL-eligible students. Specifically, average per-pupil expenditures increased by $626 (6 percent) in schools with the highest shares of FRL-eligible students. In contrast, there was a marginally statistically significant decline in per-pupil expenditures of $790 (8 percent) for the lowest FRL-eligibility bin. Third, changes in school-level funding after the full implementation of the SBB are consistent with the district's stated objective of increasing equity in school funding. In the post-SBB school years, average per-pupil expenditures in high FRL-

eligible schools exceeded average per-pupil expenditures in low FRL-eligible schools by $1,629, which contrasts sharply with a pre-SBB difference of $213 in average per-pupil expenditures between the schools in these two groups. In total, the difference in average per-pupil expenditures between schools in the highest and lowest FRL-eligibility bins increased nearly seven-fold during this period.

Given the changes in per-pupil expenditures observed over this period and the pronounced differential across the highest and lowest FRL-eligibility groups, a natural question arises regarding how schools spent these funds. Figure 2 illustrates per-pupil expenditures on salary/benefits following the adoption of SBB for the same FRL-eligibility groups. The evolution of per-pupil expenditures on salary/benefits roughly mirrors the patterns observed for per-pupil expenditures overall: although per-pupil expenditures on salary/benefits were nearly identical in the highest and lowest FRL-eligible schools during the transition years (per-pupil expenditures were around $8,800 in 2013-14 in both groups), by the 2018-19 school year, schools in the highest FRL-eligibility group were spending over $10,100 per pupil, while schools in the lowest FRL-eligibility group were spending around $8,000 per pupil. The patterns in Appendix Figure A9 demonstrate that although salary/benefits per teacher position were falling over this period, this decline was dominated by increases in the number of positions per student (i.e., that average class size was falling faster) for schools in the highest FRL-eligibility group.

## B. Research Question 2: External Fundraising in CPS: Modes and Magnitudes Over Time, External Fundraising by FRL Eligibility, and How Externally Fundraised Dollars Were Spent

Over the study period, we find that nearly all CPS elementary schools generated external funds from at least one source. Panel (a) of Figure 3 depicts the share of elementary schools with

positive external fundraising (i.e., externally fundraised dollars greater than zero) from 1) School Internal Accounts, 2) Corporate, Foundation, and Facilities, 3) Donors Choose, and 4) 501(c)3 nonprofits.[12] Between the 2013-14 and 2018-19 school years, the share of schools with external fundraising from School Internal Accounts increased from around 59 percent to 92 percent (a 57 percent increase in relative terms). The share of schools with Corporate, Foundation, and Facilities funds fluctuated around 95 percent, with a low of 89.0 percent in 2017-18 and a high of 99.3 percent in 2016-17. The share of schools with external fundraising from Donors Choose funds also grew over the period for which we have data, from 80.0 percent in 2015-16 to 90.0 percent in 2018-19 (a 12.5 percent increase in relative terms). Finally, the share of CPS elementary schools with external fundraising raised from a school-affiliated nonprofit remained constant at around 12 percent between 2011-12 and 2018-19. We note that there is the possibility of "double-counting" externally fundraised dollars in the categories of School Internal Accounts and school-affiliated nonprofits.[13] We return to this issue in later sections but note that the flat trend in the share of schools with external fundraising from nonprofits suggests that this type of external fundraising alone cannot account for all funds flowing into School Internal Accounts.

While raising at least some external funds was common, the magnitude of the amount raised varied dramatically across schools. Trends in external dollars on a per-pupil basis are shown in Panel (b) of Figure 3. The plots depicted here are conditional on a school having positive dollars from an external fundraising source and depict the mean per-pupil dollars raised from a given funding source. Analogous figures depicting the unconditional means are in Appendix Figure A10. First, we find that average externally fundraised dollars per pupil generally increased over time in real terms across most funding sources. Over the period for which we have data on all four sources (2015-16 through 2018-19), average externally fundraised dollars in School Internal Accounts

increased from around $58 per pupil to just over $70 per pupil. In contrast, Corporate, Foundation, and Facilities funds fell by $14 per pupil, from $46 per pupil in 2015-16 to just above $31 per pupil in 2018-19. Although Donors Choose was a popular funding source used by most elementary schools, the dollars raised per pupil were small in magnitude relative to other sources. That said, the average dollars raised through Donors Choose increased 25 percent over the period from $8 per pupil to $10 per pupil. Finally, between the 2015-16 and 2018-19 school years the 501(c)3 nonprofit groups were raising an average of roughly $260 per pupil every year. This was up from around $200 per pupil in the earliest data we have. However, as shown previously, relatively few schools raised funds from 501(c)3 nonprofits.

To further explore how external fundraising varied across schools, we investigated the relationship between external fundraising and school-level FRL eligibility. In Panel (a) of Figure 4 we document that nearly all CPS elementary schools had external funds in three of the four categories – School Internal Accounts; Corporate, Foundation, and Facilities; and Donors Choose – regardless of their share of FRL-eligible students. In contrast, the relationship between having external funding from a 501(c)3 nonprofit and school-level FRL eligibility was strongly negative. Of the schools in the lowest (0-20 percent) FRL-eligibility bin, 82.3 percent had external funds from a school-affiliated 501(c)3 nonprofit; this percentage declined to 80 percent, 48 percent, 24 percent, and 2 percent, respectively, across the second through fifth bins based on school-level FRL eligibility.

Panel (b) of Figure 4 plots average levels of fundraising in each category by school-level FRL eligibility. We show large discrepancies in average per-pupil external funds for schools in the lowest and highest bins of FRL eligibility for both School Internal Accounts and school-affiliated nonprofits.[14] Among schools in the lowest FRL-eligibility bin, School Internal Accounts

had $342 per pupil on average compared with only $29 per pupil among schools serving the highest shares of FRL-eligible students. These averages are $384 and $1, respectively, for per-pupil dollars raised through school-affiliated 501(c)3 nonprofits.[15] In contrast, we find that average per-pupil funding from the Corporate, Foundation, and Facilities and Donors Choose sources was much less disparate: averages among the lowest and highest FRL-eligibility groups were $6-$8 per pupil from Donors Choose (in both groups) and $56 versus $36 per pupil for Corporate, Foundation, and Facilities funds. Indeed, further investigation into the sources of Corporate, Foundation, and Facilities funds reveals that a handful of schools in the middle FRL-eligibility bins generated large revenues from parking lot rental (see Appendix Table A2).[16]

To complement our exploration of the relationship between external fundraising and FRL eligibility, we further examine how schools spend externally fundraised dollars. Using details contained in the CPS budget data, we classified spending from Corporate, Foundation, and Facilities funds and School Internal Accounts into five expenditure categories: Salary/Benefits, Commodities/Equipment, Contracts, Contingencies, and Transportation (for a list of items included in each expenditure category, see Appendix B, Section V.)

In Figure 5, we plot external funds per pupil from Corporate, Foundation, and Facilities funds and School Internal Accounts (combined), separately for our five expenditure categories across the five bins of school-level FRL eligibility. Within each of the five FRL-eligibility bins, average per-pupil external funds were highest for the two expenditure categories most closely linked to school personnel and instruction: salary/benefits and commodities/equipment. Despite this common pattern within bins, however, per-pupil spending on these expenditure categories varied dramatically across bins. Schools in the lowest FRL-eligibility bin spent more external funds on salary/benefits than schools in the highest FRL-eligibility bin by a factor greater than 13

($247 per pupil compared to $18 per pupil). Schools in the lowest FRL-eligibility bin spent more external funds on commodities/equipment than schools in the highest bin by a factor greater than 5 ($95 per pupil compared to $19 per pupil).

### C. Research Question 3: The Interaction Between Student-Based Budgeting and External Fundraising

In this section, we assess the extent to which external fundraising threatens to undo CPS-led efforts to direct more financial resources to disadvantaged (i.e., FRL-eligible) students in the district. Figure 6 plots average per-pupil expenditures allocated to schools through the SBB process (net of centralized expenditures, School Internal Accounts, and Corporate, Foundation, and Facilities), separately by FRL-eligibility bin (solid line). Average per-pupil expenditures for schools in the lowest FRL-eligibility bin were $8,280. In contrast, average per-pupil expenditures for schools in the highest FRL-eligibility bin were $10,302, a difference of $2,022 per pupil. We refer to this difference by school share of FRL eligibility as the "policy-induced per-pupil expenditure difference." Average per-pupil expenditures in the middle three FRL-eligibility bins were very similar to each other, ranging from $8,972 to $9,077. We note that these magnitudes differ slightly from those presented previously due to the removal of funds generated through School Internal Accounts and Corporate, Foundation, and Facilities.

To better account for the total financial resources flowing into schools, we add external fundraising to the district-allocated school-level budget. Although relatively straightforward, we take steps to address the potential for overlap (i.e., "double counting") of dollars in School Internal Accounts and 501(c)3 nonprofit organizations. This overlap could occur, for example, if a school-affiliated nonprofit made a financial gift directly to the school that was then counted a second time in School Internal Accounts. To address this possibility, we create bounds by assuming either (1)

complete overlap (i.e., all dollars in the School Internal Accounts came from a school-affiliated nonprofit) or (2) no overlap (i.e., school-affiliated nonprofits did not give financial resources to schools directly but instead funded services or made direct purchases for the school's benefit). We note that external funding from Donors Choose and Corporate, Foundation, and Facilities funds is unaffected by this possible overlap.

The two possible cases described above – when added to the unaffected external funds from Donors Choose and Corporate, Foundation, and Facilities – generate upper and lower bounds on per-pupil external funds at the school level. We add these estimates of total external funds to per-pupil expenditures allocated through the district's SBB process to generate upper and lower bound estimates of total financial resources per pupil at the school level. We plot these total resource measures per pupil by FRL-eligibility bin in Figure 6 (dashed and dotted lines reflecting the two possible cases).

Given that per-pupil funding from School Internal Accounts and school-affiliated nonprofits varies inversely with school-level FRL eligibility, it is unsurprising to see that the bounds on total financial resources per pupil are wider for schools with few FRL-eligible students and narrower for schools with more FRL-eligible students. Among schools in the lowest FRL-eligibility bin, the lower bound estimate of external fundraising per pupil is around $544 and the upper bound is around $788. Among schools in the highest FRL-eligibility bin, the lower and upper bounds are both roughly $73. Adding these bounds to per-pupil expenditures from SBB yielded the following per-pupil measures of total financial resources: among schools in the lowest FRL-eligibility bin, the range is $8,825-$9,069; among schools in the highest FRL-eligibility bin, both the upper and lower estimates are $10,374. These measures of total financial resources per pupil shrink the policy-induced per-pupil expenditure difference to $1,305-$1,549 per pupil, which

represents a 23-35 percent decline in relative terms (compared to the original policy-induced per-pupil expenditure difference of $2,022).

As a final exercise, we look at the difference in per-pupil expenditures between schools in the highest and lowest FRL-eligibility bins over time and disaggregate these differences by source. The black diamonds in Figure 7 represent the total difference in per-pupil expenditures between schools in the highest and lowest FRL-eligibility bins between the 2011-12 and 2018-19 school years, based on CPS budget data. The solid vertical line represents the onset of SBB funding, and the dashed vertical line marks the end of the transition period. When the difference is zero, average per-pupil expenditures at schools in the highest and lowest FRL-eligibility bins are equal. For school years 2013-14 through 2018-19, we use the CPS budget data to disaggregate the total difference by source. Red bars represent the combined special and regular education funds (General Fund), the majority of which are SBB funds; orange bars represent Title I and state supplemental aid (Title I); green bars represent the School Special Income Fund (Fund 124); yellow bars represent Equity Grant[17] funds (Equity Grants); navy bars represent early childhood education funds from the federal Head Start and state preschool programs (Head Start); and gray bars represent all other categories (Other).[18] The size of the bar for each category reflects the size of the difference in average per-pupil funding between schools in the highest and lowest FRL-eligibility bins. When schools in the highest FRL-eligibility bin receive more dollars per pupil from a particular source than schools in the lowest bin, the bar for that source lies above the zero-line. Correspondingly, when schools in the highest FRL-eligibility bin receive fewer dollars per pupil from a source than schools in the lowest bin, the bar for that source lies below the zero-line.

The 2011-12 school year was the only year in which the difference in average per-pupil expenditures was negative (although small), with schools in the highest FRL-eligibility bin

spending $62 per pupil less than schools in the lowest FRL-eligibility bin. The difference was positive in every subsequent school year, reflecting, in part, that CPS was successful at directing relatively more funding toward schools with the highest shares of FRL-eligible students, particularly in later school years. The difference in per-pupil expenditures was relatively small during the SBB transition period, $105 to $369 per pupil, after which the per-pupil spending difference widened to around $1,500 per pupil. This difference stayed relatively constant through 2017-18 and then widened further again in 2018-19, in part due to Equity Grants that were awarded to schools with low total enrollment (most of which are in the highest FRL-eligibility bin).

Notably, the difference in per-pupil special and regular education funding (General Fund) narrowed from around −$1,400 during the SBB transition period to −$350 in 2016-17 and −$77 in 2018-19.[19] Once again, we see that the switch to SBB seems to have helped equalize regular and special education funding for high and low FRL-eligible schools. Not surprisingly, Title I funding and supplemental state grants, shown in orange, are fundamental in ensuring that relatively more dollars are allocated to schools serving larger numbers (and higher shares) of FRL-eligible students. Over all years shown, these funds contributed between $1,200 and $1,500 per pupil to the difference in spending between high and low FRL-eligible schools. Similarly, Head Start and the state preschool programs (shown in navy) also allocate more funds on a per-pupil basis to schools in the highest FRL-eligibility bin. The contribution to the per-pupil difference in spending from these early childhood education funds nearly doubled over the period shown from $378 to $755.

Offsetting the forces that work toward equalizing or increasing funding for schools in the highest FRL-eligibility bin—adoption of SBB and categorical aid for FRL-eligible students—is the School Special Income (Fund 124) funds shown in green. The per-pupil difference in Special

Income funds is −$240 in 2013-14 growing in absolute value terms to −$387 in 2018-19. Thus, external fundraising undoes 20 to 27 percent of the funding difference generated by the categorical Title I and state supplemental aid funds. The total funding difference widened more in 2018-19. In part, this was due to the district's adoption of "Equity Grants" aimed at supporting schools with low or declining enrollment, which tended to be schools in the high FRL-eligibility bin. These funds contributed $63 per pupil in 2018-19, not enough to offset the difference in external funds raised by schools in the low-FRL-eligibility bin.

## V. DISCUSSION OF FINDINGS AND POLICY ALTERNATIVES

In this paper, we show that the relationship between per-pupil expenditures and the school-level share of FRL-eligible students increased substantially following CPS adoption of an SBB policy. Specifically, the average difference in per-pupil expenditures between schools serving high (80-100 percent) versus low (0-20 percent) shares of FRL-eligible students increased substantially from $213 to $1,629 following this reform. This resource reallocation occurred during a time of increases in overall spending, with per-pupil expenditures growing by $400 on average during this period. We also document the near universality of external fundraising by CPS elementary schools over this same period. Despite this widespread prevalence, most external fundraising is concentrated in a small number of schools that serve relatively affluent students, and these schools typically spent their fundraised dollars on school personnel and instruction. Finally, we explore the interaction between CPS budgeting and external fundraising, showing that externally fundraised dollars narrow the policy-induced per-pupil expenditure difference between schools enrolling the lowest and highest shares of FRL-eligible students by 23-35 percent.

School districts in early stages of investigating the extent of external fundraising have sought to gather information as a first step in crafting policies. Public schools in New York City surveyed parent organizations and released data on external fundraising for the first time in 2019; the data document large disparities, with some schools raising over $1,000,000 and others reporting very little external fundraising (Brody, 2019). In response to growth in the prevalence and magnitude of external fundraising that typically occurs at schools serving already well-resourced student populations, some school districts have experimented with policies designed to eliminate or lessen the extent and impact of unequal external fundraising across schools. Examples include policies that centralize and reallocate at least some of the dollars that individual schools fundraise. Other policies seek to regulate external fundraising activities by placing limits on the solicitation and acceptance of large financial gifts, prohibiting expenditures on specific categories (e.g., personnel), or "taxing" external fundraising and redistributing the revenue across schools within the district. Whether these policies redistribute fundraised dollars in a way that results in increased spending on instruction and ultimately better student outcomes, result in dampened fundraising efforts, or both, is an open question for future research.

To combat inequality in external fundraising across schools within the district, two school districts in California – Santa Monica-Malibu Unified School District (SMMUSD) and Albany Unified School District (AUSD) – centralized their fundraising efforts in the 2010s. Based on a stated concern about the implications of unequal external fundraising across schools, the SMMUSD School Board formed a philanthropic foundation to centralize and distribute all fundraising in the district (Goldstein, 2017; Schaller and Nisbet, 2020). By 2018, however, the single foundation was reorganized into two separate entities: one supporting Santa Monica and the other (to be created) supporting Malibu (Santa Monica Education Foundation, n.d.). Similar efforts

to centralize external fundraising were undertaken by AUSD, a small district in Albany, California, where concerns for unequal fundraising led the district to equalize programming opportunities across the district's three elementary schools through a centrally managed annual fundraising campaign and more district involvement in planning programming across schools (Raguso, 2014).

Other school districts have implemented policies that "tax" externally fundraised dollars from individual school-support organizations and then redistribute the revenue to other schools with limited or no external fundraising. School districts in Evanston, Illinois, and Portland, Oregon, have adopted this type of policy. Following community-initiated efforts that started in 2016, the PTA Equity Project (PEP) in Evanston, Illinois, brought together all PTAs in the district and redistributed external fundraising across organizations in 2018-19 (PTA Equity Project, 2020).[20] In 2019, the Fund for Portland Public Schools brought together affiliated and independent local school foundations (LSFs) to coordinate fundraising activities and redistribute some funds across schools (i.e., individual schools that raise an excess of $10,000 keep a portion of the excess and pool the remainder with other funds to be redistributed across schools in the district) (The Fund for Portland Public Schools, n.d.).

Less "hands-on" approaches have left external fundraising to school-affiliated organizations but have sought to limit the scope of external fundraising activities with the addition of school board oversight or explicit regulation. School districts in Palo Alto, California, and Seattle, Washington, have adopted policies that added school board oversight to the acceptance of large financial gifts and expenditures undertaken by external fundraising groups (Palo Alto Unified School District, 2020; Seattle Public Schools, n.d.). School districts in Austin, Texas, and New York City have prohibited parent associations from spending on specific categories, such as personnel (Drabicky, 2021; New York City Department of Education, 2021).

While CPS has not explicitly regulated a school's ability to fundraise or how a school spends fundraised dollars, the district has embedded other structural ways to increase equitable school funding in the district, above and beyond its student-based budgeting policy. First, CPS established an Office of Equity in 2018, and the office is charged with developing and promoting equity-based frameworks to influence district-wide decisions. Other attempts to promote equitable resource allocation include periods during which the district "held schools harmless" for student enrollment declines, meaning that these schools receive the same level of resources as in years past but serve fewer students, effectively increasing per-pupil expenditures at those schools (that tend to serve high shares of FRL-eligible students). Because, as we show in this paper, a reallocation of fundraised dollars in CPS would not meaningfully raise per-pupil funds across the district's elementary schools, structural policy changes like these will likely be more impactful than policies regulating school fundraising efforts – at least in this district context.

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[1] Weighted-student funding is also sometimes called student-based budgeting, fair student funding, or student-centered funding (Education Resource Strategies, 2018).

[2] Recent empirical work by (Atchison & Levin, 2023) Atchison and Levin (2023) finds that district-level weighted-student funding (WSF) policies are not always successful at directing more resources to disadvantaged students. The authors identify funding policies outside of the WSF system, budgeting practices related to teacher salaries, and regressive weights (e.g., funding for gifted education or magnet schools) as potential reasons for this failure.

[3] Funding for schools serving low-income students is based on per-pupil allocations and, in the case of Title I, additionally based on the percentage of low-income students enrolled in a school. (The first three panels of Appendix Figure A1 illustrate the relationships between Title I and SGSA/Supplemental Aid per pupil and the share of FRL-eligible students enrolled.) Additional funding for special education flows to schools through allocated positions based on students' Individualized Education Program needs, although for FY2017 and FY2018 the district experimented with providing the additional special education funding on a per-pupil basis as a function of the amount of required services and the share of time spent in a general education classroom. Additional funding for ELs flows through allotments of bilingual teacher positions. CPS also funds three foundation positions for each school—one principal, one clerk, and one counselor (*Reader's Guide to the Budget FY 22*, n.d.).

[4] Additional funding for schools serving low-income students enters school budgets in two ways: through the allocation of Supplemental General State Aid (SGSA, Supplemental Aid as of FY 2019) and federal Title I dollars. We plot the average share of per-pupil expenditures coming from these funds by FRL-eligibility bin in Panel (d) of Appendix Figure A1. For schools with FRL-eligibility rates between 0 and 20 percent, the typical share of per-pupil expenditures from these sources is around 2.3 percent. In contrast, for schools with FRL eligibility between 81 and 100 percent, the typical share of per-pupil expenditures from these sources is around 16 percent.

[5] Roza et al. (2021) conclude that CPS used district-level average teacher salaries in the budgeting process in the 2017-18 school year. CPS budget policy documents, however, suggest that this is not the case, as the district adjusts teacher salary and benefit allocations if the school-level average is greater than the district-level average. Notably, there is no adjustment for schools with average salaries below the district-wide average. Therefore, school-level budget allocations for teacher salary and benefits are unique to each school. See Chicago Public Schools Final Budget Book (various years).

[6] We note that some school-affiliated organizations may be subject to state- or national-level rules that govern fundraising activities (e.g., Parent Teacher Associations).

[7] To validate the school-level budget data from CPS Budget Books, we compared them with school-level budget data from the Illinois State Board of Education (ISBE) (available only for the 2018-19 school year) obtained from the National Education Resource Database on Schools (NERD$). The panels of Appendix Figure A2 illustrate the relationship between school-level CPS budget data versus ISBE budget data, including centralized expenditures (Panel a), excluding centralized expenditures (Panel b), and by school FRL group (Panel c). The correlation between the measures in Panel (b) is 0.95. Also, throughout we refer to the budget data as "expenditures" although actual expenditures may be more or less than the budgets. Budgets and expenditures have a correlation coefficient of 0.97. We also find no statistically significant relationship between differences in budgeted funding and expenditures by school FRL eligibility. (See Appendix Figure A3.)

[8] Using NCCS IRS data from 2010 to 2020, we examine whether schools ever had a school-affiliated nonprofit registered with the IRS (independent of filing). During this time frame, we find that schools with the highest levels of FRL-eligible students are less likely to have had any such nonprofit than schools with low levels of FRL-eligible students. See Appendix Figure A4.

[9] Eligibility for FRL is determined based on annual household income (adjusted for household size). For the years we study, the threshold for free lunch eligibility is household income less than or equal to 1.30 times the federal income poverty guideline, and the threshold for reduced-price lunch eligibility is household income between 1.30 and 1.85 times the federal income poverty guideline. During the 2018-19 school year, these translate into annual income thresholds of $32,630 and $46,435 (household size of four), for free and reduced-price lunch, respectively.

[10] We note that FRL eligibility masks a lot of heterogeneity in individual students' family financial circumstances and resources. Further, FRL data may have become less accurate over time as school districts like CPS have moved to providing free meals for all students, thereby decreasing the incentive for families to apply for FRL. CPS adopted the Community Eligibility Provision (CEP) in the first year that it was available, the 2014-15 school year. Empirically, we find little evidence of changes in the distribution of school-level FRL eligibility around the 2014-15 school year. As shown in Appendix Figure A6, the distribution of the share of students eligible for FRL has shifted over time but has not led to large shifts in schools across our FRL-eligibility bins with most schools serving FRL-eligible populations of at least 80 percent across all years.

[11] Appendix Figure A7 reproduces Figure 1 using different FRL-eligibility bin definitions. We see a similar fanning out in per-pupil expenditures between the highest and lowest bins if we instead define our low bin as schools with 0 to 80 percent FRL-eligible students (Panel a) or 0 to 40 percent FRL-eligible students (Panel b).

[12] We note that external fundraising from Corporate, Foundation, and Facilities and School Internal Accounts are grouped together in CPS budget data (Fund 124). We separate them here because they originate from different sources.

[13] For School Internal Accounts, we do not observe the exact source of funding, but for Corporate, Foundation, and Facilities, we do (i.e., it is a corporation or foundation, or the funds were raised through use of a school's facilities). Because the source of School Internal Accounts is unobserved, there is likely overlap with the funds reported in the data on 501(c)3 nonprofits (which come from the IRS). We restricted the 501(c)3 nonprofit data (described in Data Appendix B) to "nonprofit organizations that (1) were located in a Chicago zip code and (2) that had a National Taxonomy of Exempt Entities (NTEE) classification of "B94: Parent Teacher Group" or contained any of the following keywords: PTA, PTO, PTSA, Booster, Parent,

Teacher, Friends." The restrictions on the 501(c)3 nonprofit data explicitly exclude corporations and foundations, however, so there should be no overlap with the category of Corporate, Foundations, and Facilities.

[14] Notably, much of the school-affiliated nonprofit funds may enter the school's budget through its Internal Account. For example, if the money is raised to help pay for an additional teacher to reduce class size, the money must be "deposited" into the School Internal Accounts fund in order for the principal to use the money to pay for the teacher.

[15] Appendix Figure A11 presents unconditional average per-pupil external fundraising for these categories by FRL bins and over time. In Panel (a), per-pupil School Internal Account funds nearly doubled for the lowest FRL-group schools between 2013-14 and 2018-19, with most of the increase occurring between the 2015-16 and 2016-17 school years. Interestingly, in Panel (d), we also see a large increase in 501(c)3 nonprofit funds for the lowest FRL-group schools but in the preceding school year, perhaps reflecting the difference between when the funds are raised and when they can be spent (and, therefore, show up in School Internal Accounts).

[16] Average per-pupil funds from these categories has been relatively constant over time for all FRL-eligibility bins. (See Appendix Figure A11, panels b and c.)

[17] CPS introduced Equity Grants in FY19 to supplement school-level budgets for schools with declining enrollment (Revuluri et al., 2020).

[18] Other funds is a residual category including tuition-based preschool; building operations and maintenance; workers' compensation/tort; school lunch; and some other federal and state grant funds, including school improvement, teacher quality, and IDEA grants. The largest of these is the school improvement funds, which allocate more funds on a per-pupil basis to schools in the highest FRL-eligibility bin.

[19] The regular education funds are substantially larger than the special education funds on a per-pupil basis (including all pupils, not just those receiving special education services). For FY 2019, the total special education ending budget was less than one-third the size of the total regular education fund ending budget (Chicago Public Schools, 2019). However, because CPS experimented with including some special education funding in SBB in school years 2016-17 and 2017-18 we cannot disaggregate the funds separately.

[20] PEP has now transitioned its efforts to support a centralized funding model.

**Table 1. Summary Statistics**

| | (1)<br>0-20% | (2)<br>21-40% | (3)<br>41-60% | (4)<br>61-80% | (5)<br>81-100% |
|---|---|---|---|---|---|
| *Panel A. School Characteristics* | | | | | |
| Share FRL | 0.153 | 0.301 | 0.496 | 0.710 | 0.939 |
| | (0.024) | (0.065) | (0.061) | (0.060) | (0.045) |
| Share Black | 0.045 | 0.222 | 0.305 | 0.261 | 0.546 |
| | (0.037) | (0.229) | (0.320) | (0.357) | (0.435) |
| Share Hispanic | 0.171 | 0.219 | 0.315 | 0.427 | 0.402 |
| | (0.057) | (0.114) | (0.221) | (0.267) | (0.409) |
| Share White | 0.629 | 0.413 | 0.263 | 0.225 | 0.022 |
| | (0.107) | (0.183) | (0.159) | (0.172) | (0.045) |
| Share English Learner | 0.043 | 0.071 | 0.118 | 0.201 | 0.196 |
| | (0.026) | (0.047) | (0.087) | (0.132) | (0.203) |
| Share Special Education | 0.099 | 0.098 | 0.115 | 0.127 | 0.143 |
| | (0.034) | (0.043) | (0.038) | (0.038) | (0.053) |
| Magnet | 0.147 | 0.300 | 0.440 | 0.171 | 0.077 |
| | (0.343) | (0.410) | (0.507) | (0.363) | (0.225) |
| Enrollment | 648 | 586 | 569 | 670 | 545 |
| | (253) | (222) | (212) | (290) | (291) |
| *Panel B. Per-Pupil Expenditures and External Fundraising* | | | | | |
| Per-Pupil Expenditures | 8,678.25 | 9,310.14 | 9,170.42 | 9,173.16 | 10,365.64 |
| | (1,487.72) | (1,999.90) | (1,078.33) | (1,129.90) | (1,612.46) |
| School Internal Accounts | 340.98 | 264.05 | 134.22 | 66.75 | 28.43 |
| | (252.95) | (214.39) | (125.79) | (107.56) | (53.95) |
| Corporate, Foundation, & Facilities | 56.78 | 73.63 | 81.84 | 29.19 | 35.55 |
| | (62.64) | (188.87) | (233.68) | (47.42) | (57.99) |
| Donors Choose | 6.25 | 8.24 | 11.58 | 9.53 | 8.05 |
| | (7.21) | (8.42) | (11.18) | (8.29) | (9.94) |
| 501(c)3 Nonprofit | 384.35 | 182.79 | 60.66 | 20.33 | 0.99 |
| | (301.80) | (168.05) | (76.92) | (54.04) | (11.72) |
| Observations (Schools) | 17 | 20 | 25 | 35 | 306 |

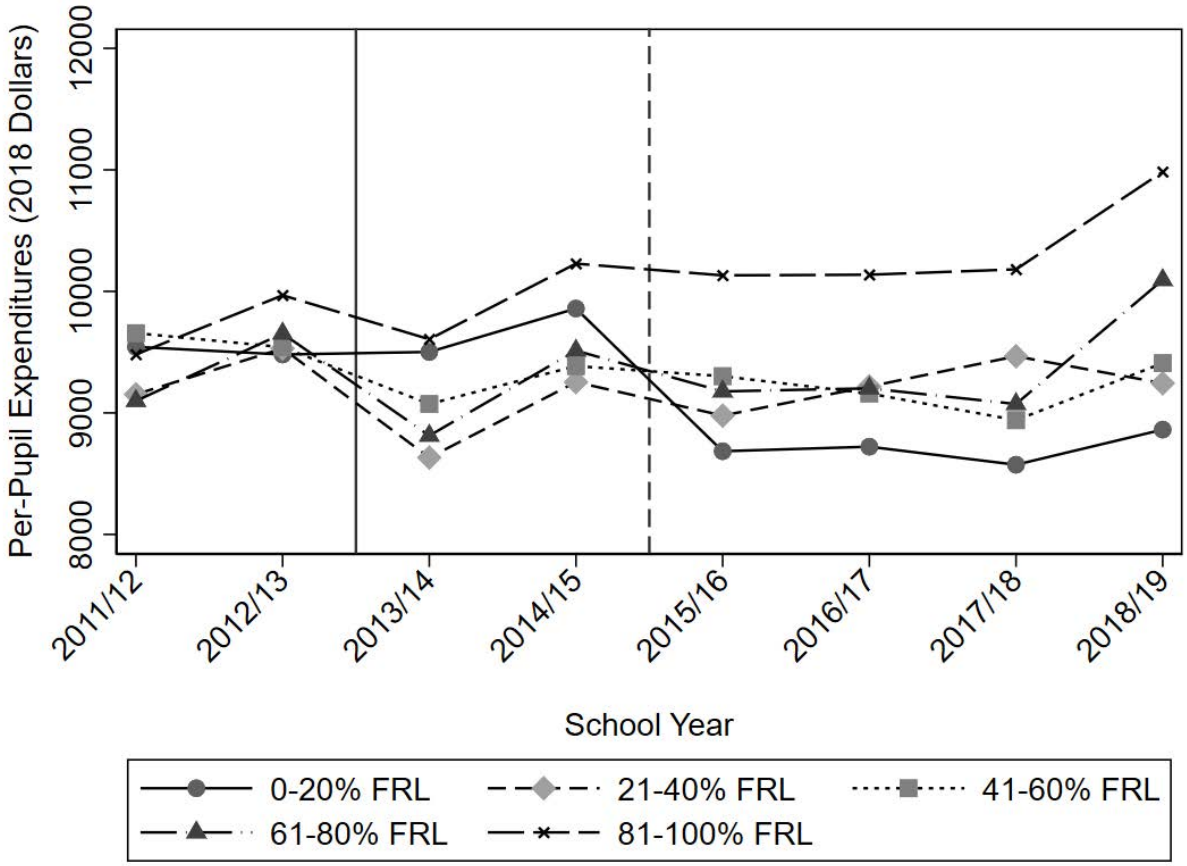
Notes: The sample contains 403 traditional elementary schools between the 2015-16 and 2018-19 school years. Per-pupil expenditures are reported in 2018 dollars. Per-pupil expenditures exclude central office expenditures on behalf of schools. School Internal Accounts and Corporate, Foundation, and Facilities funds are sub-categories of funds included in total per-pupil expenditures. All variables are averaged at the school level across the four school years in the sample. Schools are divided into FRL-eligibility bins based on average school-level eligibility between 2015-16 and 2018-19. Standard deviations in parentheses.

**Table 2. Average Per-Pupil Expenditures by Time Period, Overall and by Free/Reduced-Price Lunch Eligibility Bins**

| | (1)<br>Pre-SBB | (2)<br>Transition | (3)<br>Post-SBB | (4)<br>Diff.: Post-Pre |
|---|---|---|---|---|
| *Panel A. Full Sample* | | | | |
| | 9,659.35 | 9,768.64 | 10,064.37 | 405.02*** |
| | (64.53) | (56.44) | (43.41) | (59.25) |
| *Panel B. By FRL-Eligibility Bin* | | | | |
| 0-20% (Low) | 9,507.96 | 9,608.83 | 8,717.95 | -790.00* |
| | (512.00) | (602.31) | (183.41) | (456.58) |
| 21-40% | 9,328.45 | 8,987.72 | 9,223.83 | -104.62 |
| | (346.21) | (256.53) | (225.45) | (255.53) |
| 41-60% | 9,590.93 | 9,222.57 | 9,210.53 | -380.40 |
| | (234.66) | (179.98) | (119.88) | (245.61) |
| 61-80% | 9,392.89 | 9,137.48 | 9,451.60 | 58.71 |
| | (212.39) | (173.72) | (117.02) | (237.68) |
| 81-100% (High) | 9,720.57 | 9,921.07 | 10,346.68 | 626.11*** |
| | (71.84) | (62.00) | (49.37) | (69.09) |
| Diff: High-Low | | | | |
| | 212.61 | 312.24 | 1,628.72*** | |
| | (700.38) | (727.08) | (359.80) | |

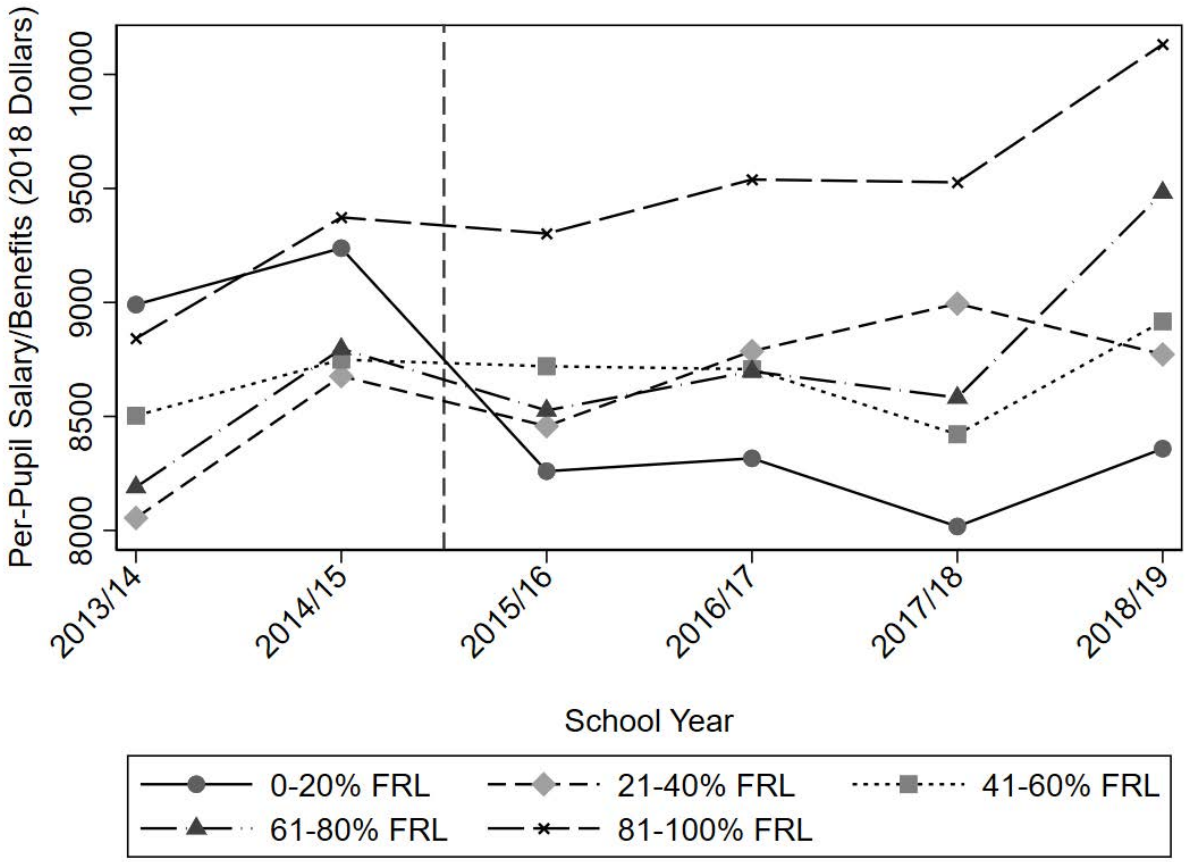
Notes: The sample contains 403 traditional elementary schools between the 2011-12 and 2018-19 school years (3,627 school-by-year observations). Per-pupil expenditures are reported in 2018 dollars. Per-pupil expenditures exclude central office expenditures on behalf of schools. The "Pre-SBB" period in Column (1) spans the 2011-12 to 2012-13 school years. The "Transition" period in Column (2) spans the 2013-14 and 2014-15 school years. The "Post-SBB" period in Column (3) spans the 2015-16 to 2018-19 school years. Heteroskedasticity robust standard errors clustered at the school level are in parentheses.

**Figure 1. Average Total Per-Pupil Expenditures by Free/Reduced-Price Lunch Eligibility**



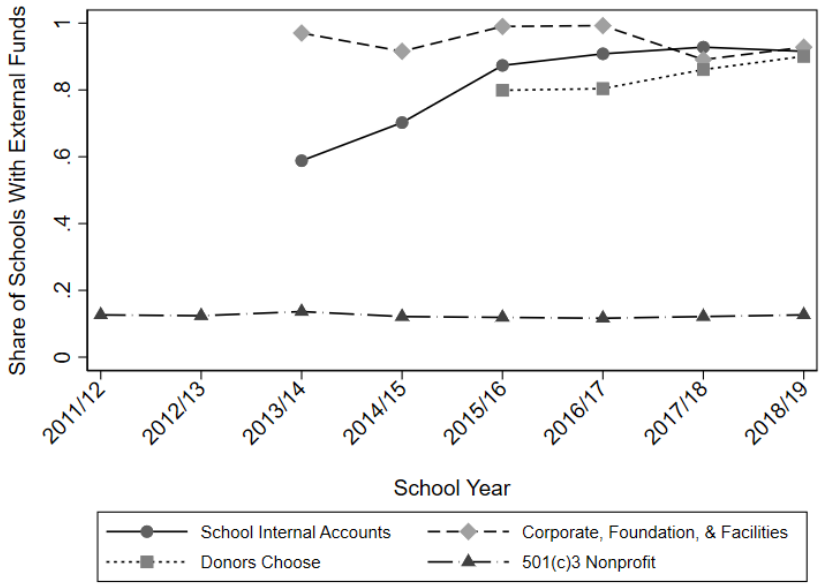

Notes: The sample contains 403 traditional elementary schools that were continuously open over the period. Total per-pupil expenditures exclude central office expenditures on behalf of schools and are reported in 2018 dollars. The solid vertical line marks the adoption of SBB funding. The dashed vertical line marks the end of the SBB transition period.

**Figure 2. Per-Pupil Expenditures on Salary/Benefits by Free/Reduced-Price Lunch Eligibility**

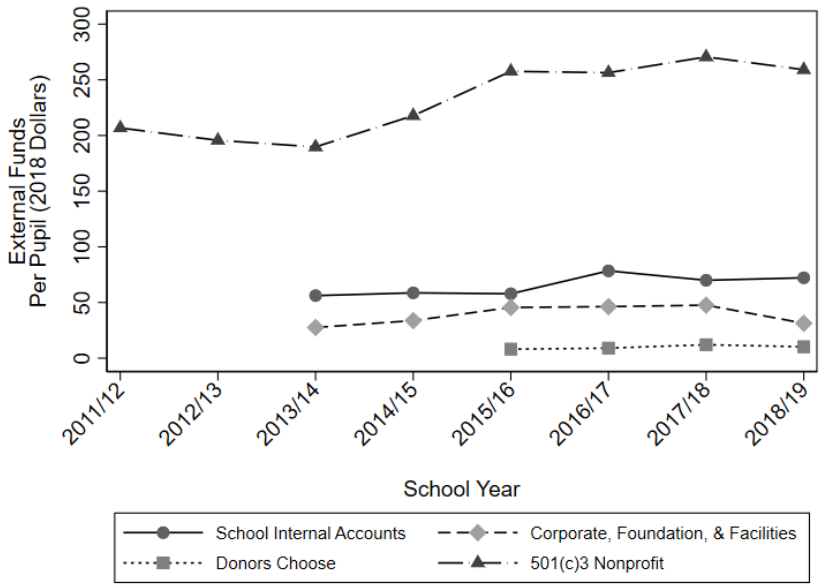



Notes: The sample contains 403 traditional elementary schools. The dashed vertical line marks the end of the SBB transition period.

**Figure 3. Trends in External Funds Per Pupil by Source**



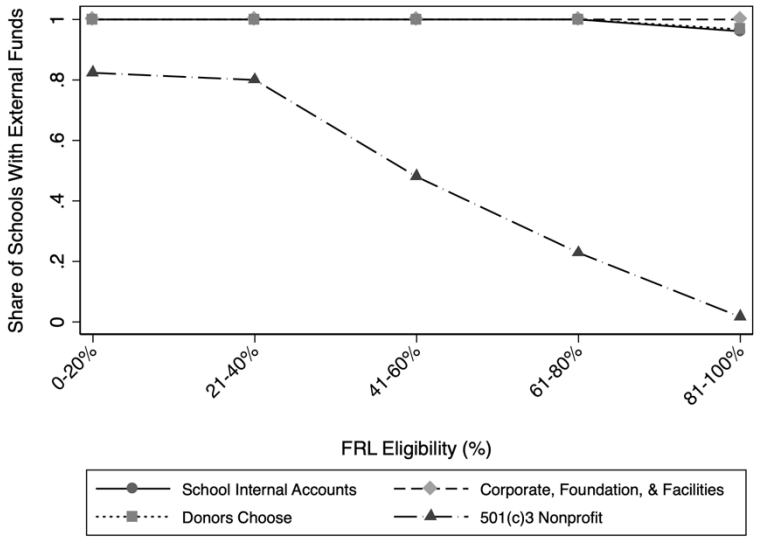

(a) Share of Schools with Non-Zero External Fundraising Dollars by Source



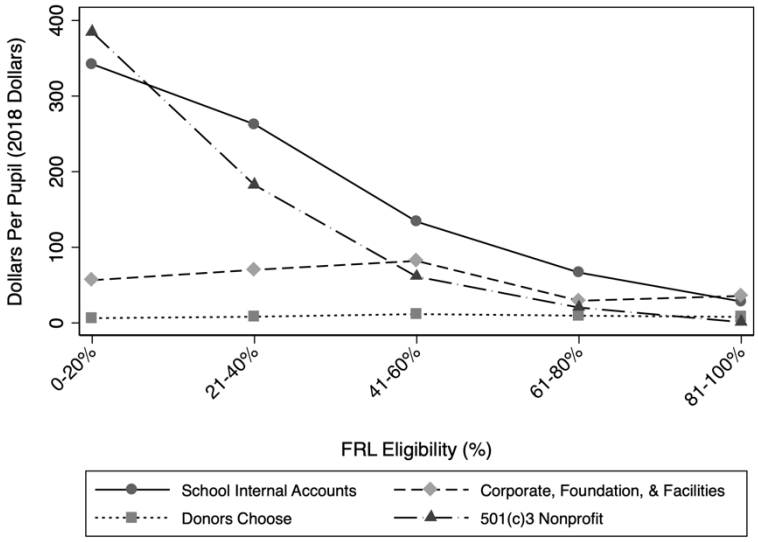

(b) Average Per-Pupil Externally Fundraised Dollars by Source

Notes: The sample contains 403 traditional elementary schools continuously open over the period. All dollar values are reported in 2018 dollars. We document fundraising trends over time from each of the following sources: School Internal Accounts; Corporate, Foundation, and Facilities funds; Donors Choose; and 501(c)3 nonprofits. Panel B averages are conditional on a school having non-zero external dollars from a given source. We present all years available for each data source.

**Figure 4. External Funds Per Pupil by Source and School Free/Reduced-Price Lunch Eligibility**



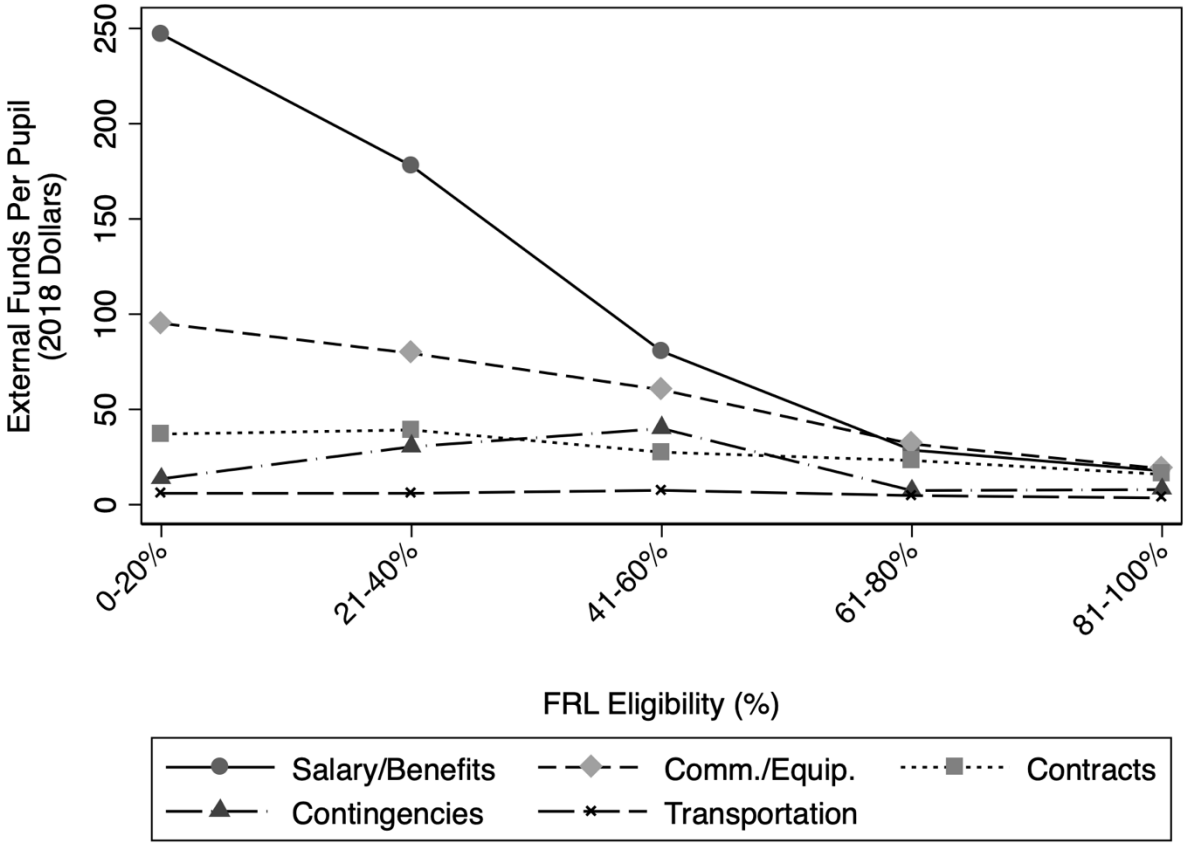

(a) Share of Schools with Non-Zero External Dollars by School Free/Reduced-Price Lunch Eligibility




(b) Average Per-Pupil Dollars Raised by School Free/Reduced-Price Lunch Eligibility

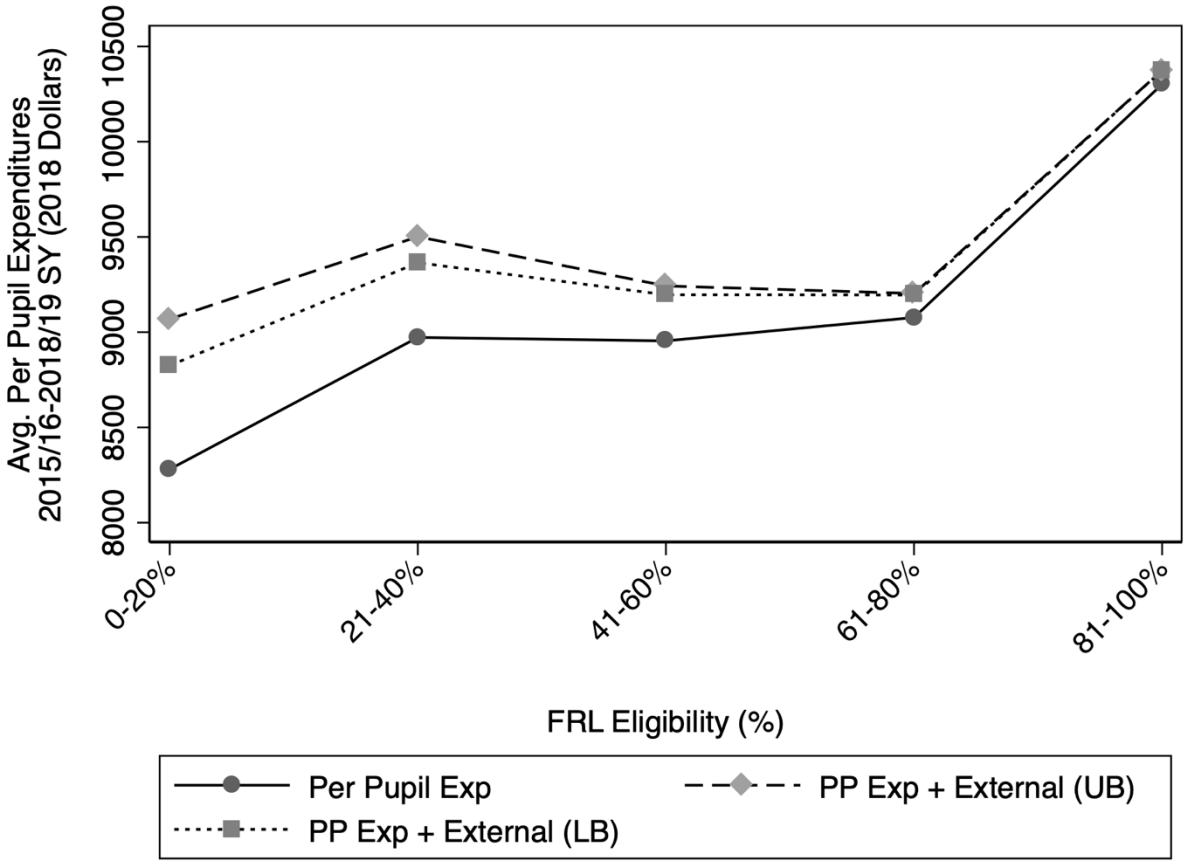
Notes: The sample contains 403 traditional elementary schools. Per-pupil funds at the school level are averaged over the 2015-16 through 2018-19 school years and then by FRL bin. Schools are partitioned into FRL-eligibility bins based on average school-level FRL eligibility between the 2015-16 and 2018-19 school years. All dollar values are reported in 2018 dollars.

**Figure 5. External Funds Per Pupil by FRL Eligibility, Separately by Expenditure Category**



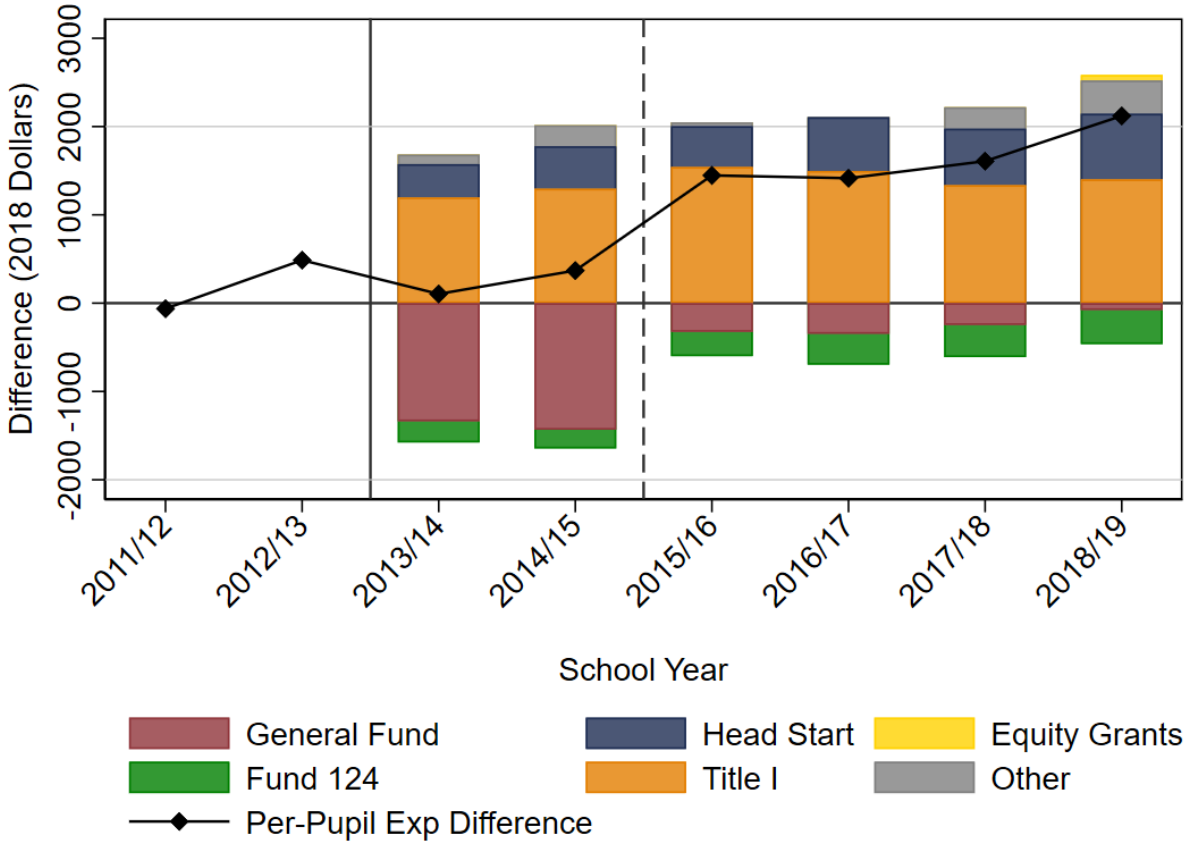

Notes: The sample contains 403 traditional elementary schools. Per-pupil allocations are reported in 2018 dollars and averaged over the 2015-16 to 2018-19 school years. We show five expenditure categories from the CPS budget data: salary/benefits, commodities/equipment, contracts, contingencies, and transportation. External funds per pupil report combined spending per pupil from School Internal Accounts and Corporate, Foundation, and Facilities funds. Schools are partitioned into FRL-eligibility bins based on average school-level FRL eligibility between the 2015-16 and 2018-19 school years.

**Figure 6. Average Per-Pupil Expenditures (Including External Funds) by School Free/Reduced-Price Lunch Eligibility**



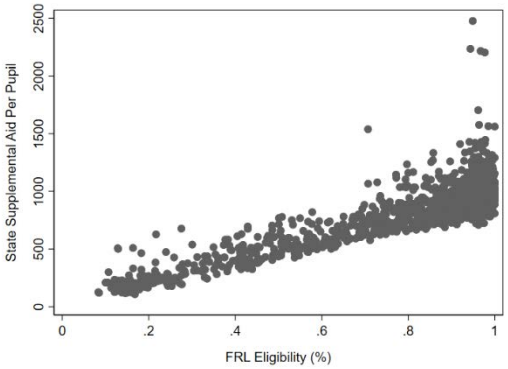

Notes: The sample contains 403 traditional elementary schools. Per-pupil expenditures and per-pupil external funds are reported in 2018 dollars. UB = Upper Bound, LB=Lower Bound. Schools are partitioned into FRL-eligibility bins based on average school-level FRL eligibility between the 2015-16 and 2018-19 school years.

**Figure 7. The Difference in Per-Pupil Expenditures Between the Highest and Lowest FRL-Eligible Schools, Overall and by Source**

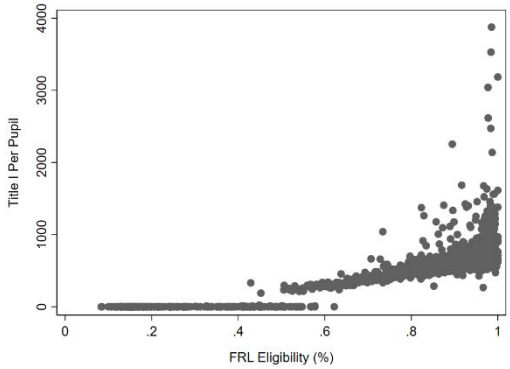



Notes: The sample contains 403 traditional elementary schools that were continuously open over the period. Total per-pupil expenditures exclude central office expenditures on behalf of schools and are reported in 2018 dollars. The dashed vertical line marks the adoption of SBB funding. The solid vertical line marks the end of the SBB transitional period. The "lowest" FRL-eligibility schools have eligibility between 0-20%, and the "highest" FRL-eligibility schools have eligibility between 81-100%. SBB funds account for the majority of the General Fund expenditures.

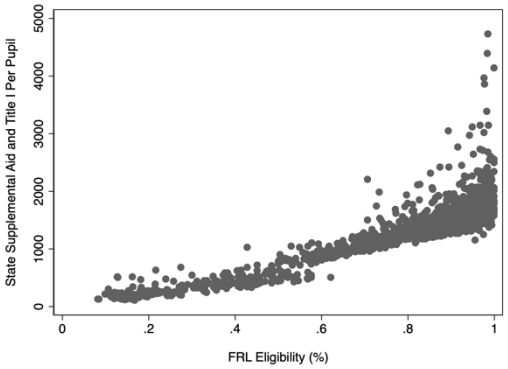
**Appendix Figure A1. Title I and Supplemental General State Aid (SGSA) Funds Per Pupil by Free/Reduced-Price Lunch Eligibility**



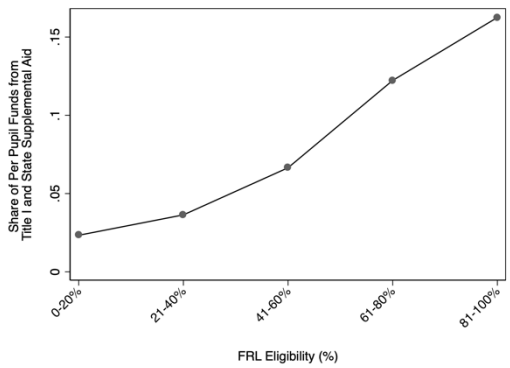

(a) SGSA Funds Per Pupil by FRL Eligibility




(b) Title I Funds Per Pupil by FRL Eligibility



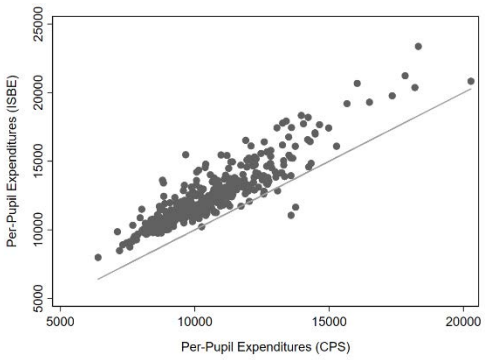

(c) SGSA and Title I Funds Per Pupil



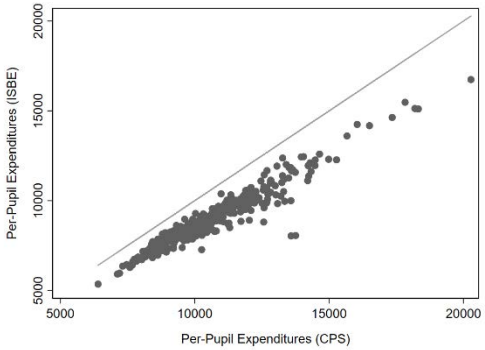

(d) Share of Per-Pupil Expenditures from SGSA and Title I, by FRL Eligibility (Bin)

Notes: The sample includes 403 traditional public elementary schools in CPS during the 2015/16 through 2018/19 school years. SGSA funds are grant aid from the state of Illinois to local school districts based on the number and share of students from low-income families. SGSA funds become Supplemental Aid in FY 2019. Title I funds are federal funds provided to school districts and schools with high numbers or high percentages of children from low-income families. Schools are divided into FRL-eligibility bins based on average school-level eligibility between 2015-16 and 2018-19.

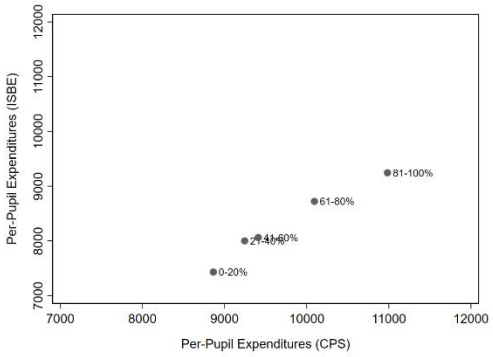
**Appendix Figure A2. Per-Pupil Expenditures in Chicago Public Schools Budget Data versus Illinois State Board of Education (ISBE)**




(a) ISBE Data Contains Site-based and Centralized Expenditures



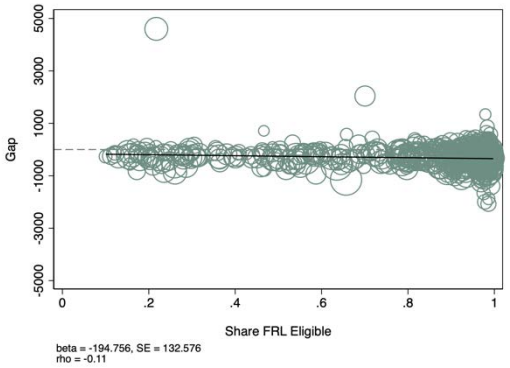

(b) ISBE Data Contains Site-based Expenditures Only (Centralized Expenditures Removed)



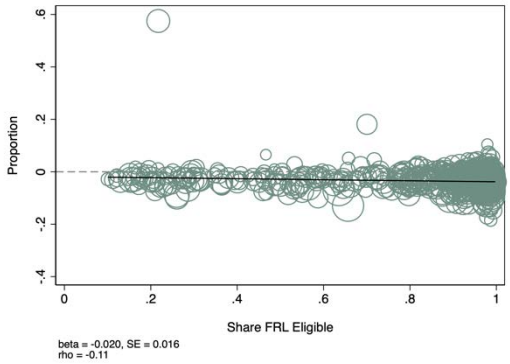

(c) ISBE Data Contains Site-based Expenditures Only (Centralized Expenditures Removed), by FRL-Eligibility Group

Notes: The sample includes 403 traditional public elementary schools in CPS during the 2018/19 school year. All dollar amounts are expressed in 2018 dollars. The x-axis represents per-pupil expenditures reported in CPS school-level budget data. The y-axis represents per-pupil expenditures reported in Illinois State Board of Education (ISBE) data, which we obtained from the National Education Resource Database on Schools (NERD$). The 45-degree line is depicted in gray. In Panel (a), ISBE per-pupil expenditures contain both site-based and centralized expenditures. In Panels (b) and (c), ISBE per-pupil expenditures contain only site-based expenditures (centralized expenditures are removed).

**Appendix Figure A3. Relationship Between the Gap in Budget versus Expenditures and School-Level Free/Reduced-Price Lunch Eligibility**

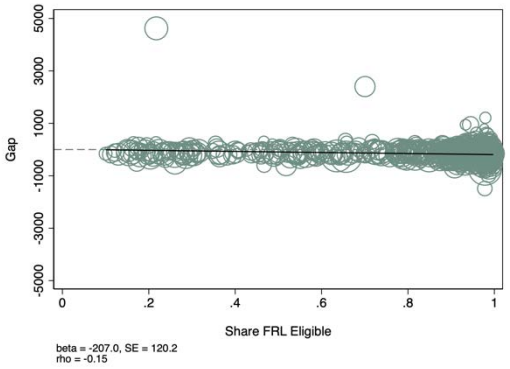



(a) Total - Dollars

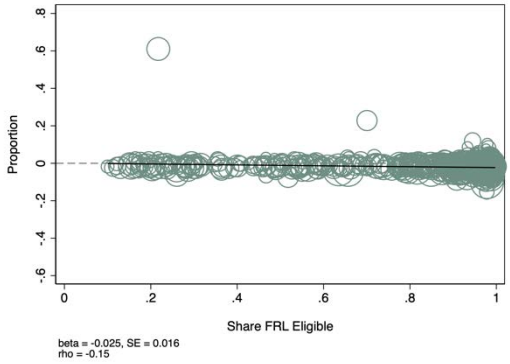



(b) Total - Proportion of Budget

(b)



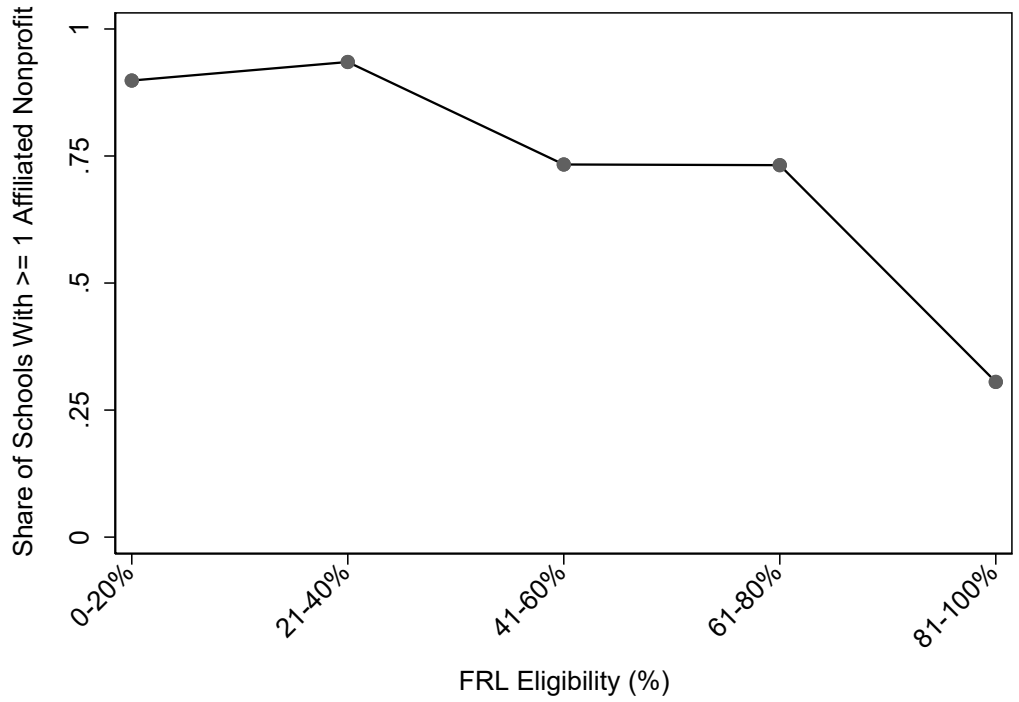

(c) Salary/Benefits – Dollars




(d) Salary/Benefits - Proportion of Budget

Notes: The sample contains 403 traditional elementary schools in the 2013/14 and 2014/15 school years. Per-pupil expenditures are reported in 2018 dollars. Reported regression estimates and correlations are weighted by enrollment. Unweighted correlations are smaller in absolute value.

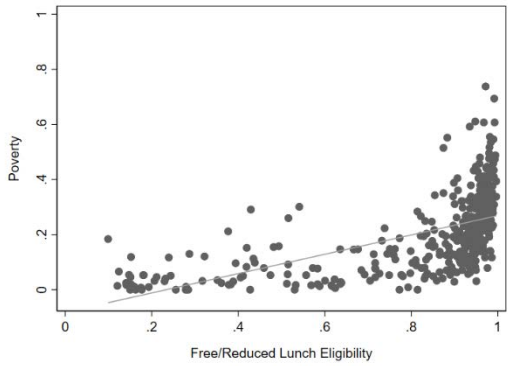
**Appendix Figure A4. Share of Schools with Affiliated Nonprofit Organizations by Free/Reduced-Price Lunch Eligibility**



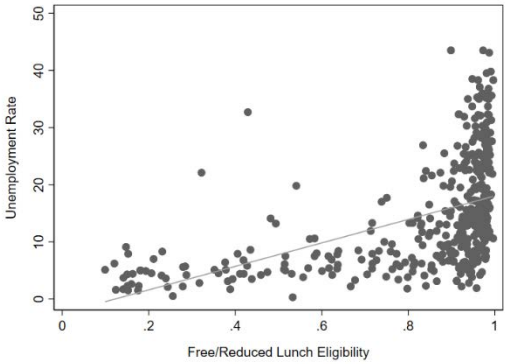

Notes: We use NCCS IRS data from 2010 to 2020 to determine whether a school had a school-affiliated nonprofit registered with the IRS during that period. The sample contains 403 traditional elementary schools that were continuously open over the period. Schools are partitioned into FRL-eligibility bins based on average school-level FRL eligibility between the 2015-16 and 2018-19 school years.

**Appendix Figure A5. Correlation Between School-Level Free/Reduced Lunch Eligibility and Census Tract Level Measures of Disadvantage**


(a) Median Income (Thousands) versus Free/Reduced Lunch Eligibility



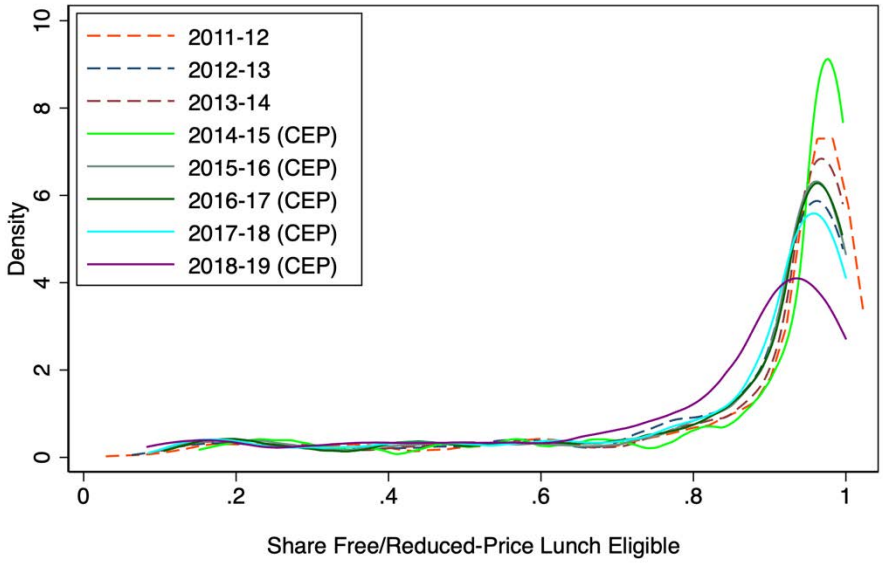

(b) Poverty Share versus Free/Reduced Lunch Eligibility



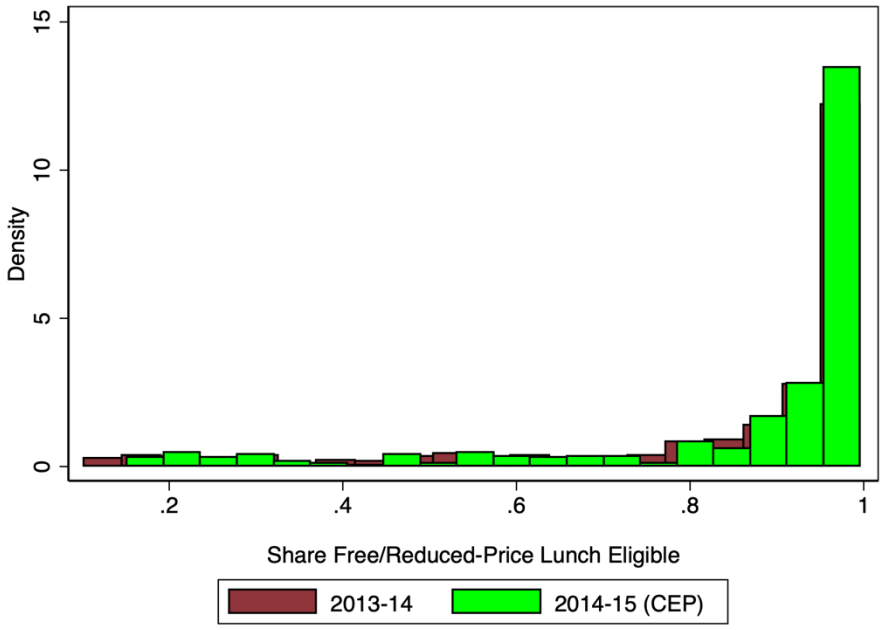

(c) Unemployment Rate versus Free/Reduced Lunch Eligibility

Notes: Median income (in thousands of 2016 dollars), share of households with income below the federal poverty level, and unemployment rates are measured at the census tract level and were obtained from the American Community Survey 5-Year Estimates (2012-2016). Each CPS school in our sample was matched to the census tract in which it was located. Free/reduced-price lunch eligibility is negatively correlated with median income (-0.73), positively correlated with the poverty rate (0.57), and positively correlated with unemployment rates (0.49).

**Appendix Figure A6. Distribution of School-Level Free/Reduced-Price Lunch Eligibility by School Year**



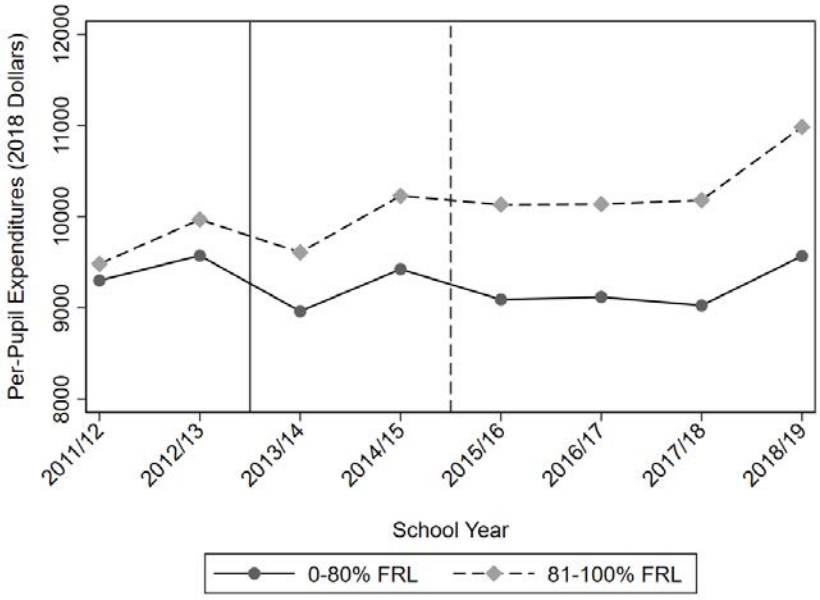

(a) All School Years



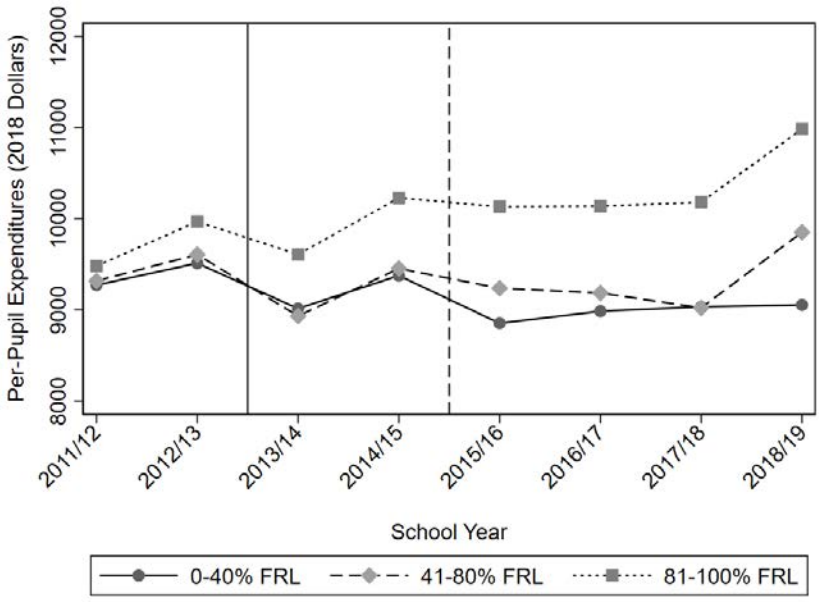

(b) 2013-14 and 2014-15 School Years

Notes: The sample in Panel (a) contains 403 traditional elementary schools between the 2011-12 and 2018-19 school years. The sample in Panel (b) is restricted to the 2013-14 and 2014-15 school years only.

**Appendix Figure A7. Average Total Per-Pupil Expenditures by Free/Reduced-Price Lunch Eligibility (Alternative FRL Bins)**



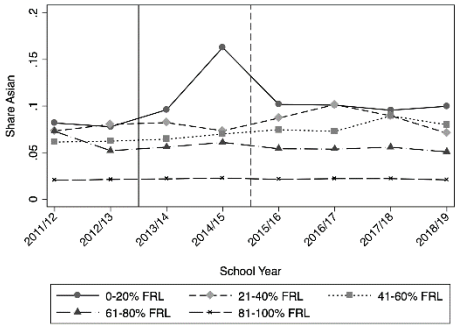

(a) Two FRL Bins



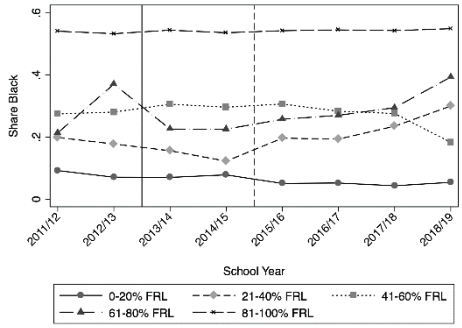

(b) Three FRL Bins

Notes: The sample contains 403 traditional elementary schools that were continuously open over the period. Total per-pupil expenditures exclude central office expenditures on behalf of schools and are reported in 2018 dollars. The solid vertical line marks the adoption of SBB funding. The dashed vertical line marks the end of the SBB transition period.

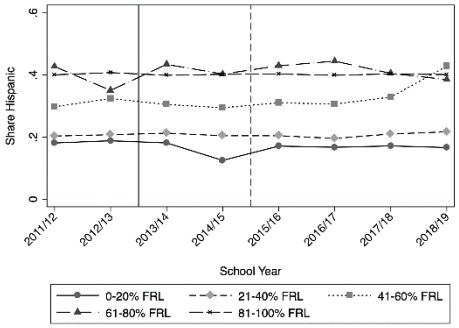
**Appendix Figure A8. Average School-Level Characteristics by Free/Reduced-Price Lunch Eligibility**



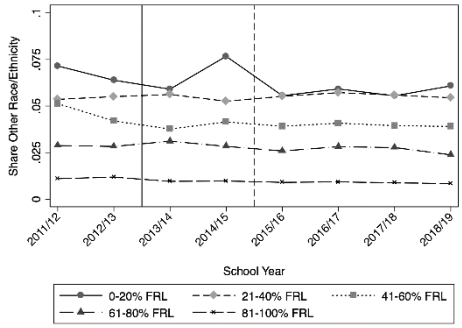

(a) Share Asian



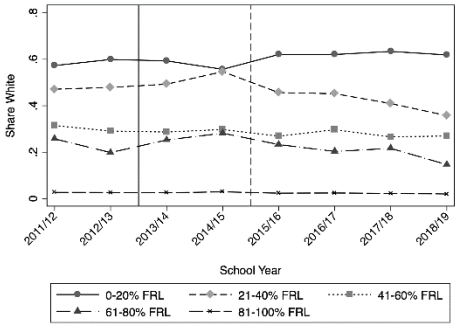

(b) Share Black



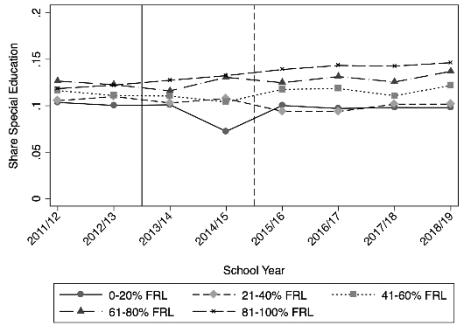

(c) Share Hispanic



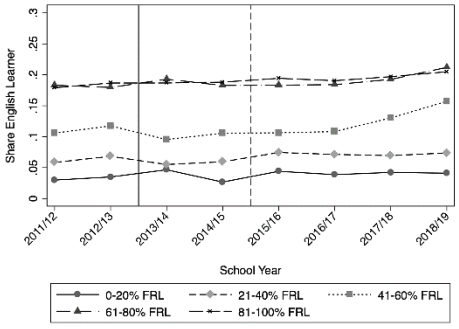

(d) Share Other Race/Ethnicity



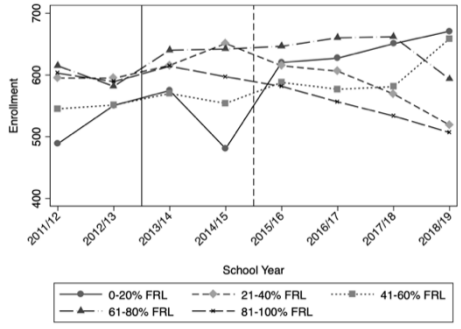

(e) Share White




(f) Share Special Education



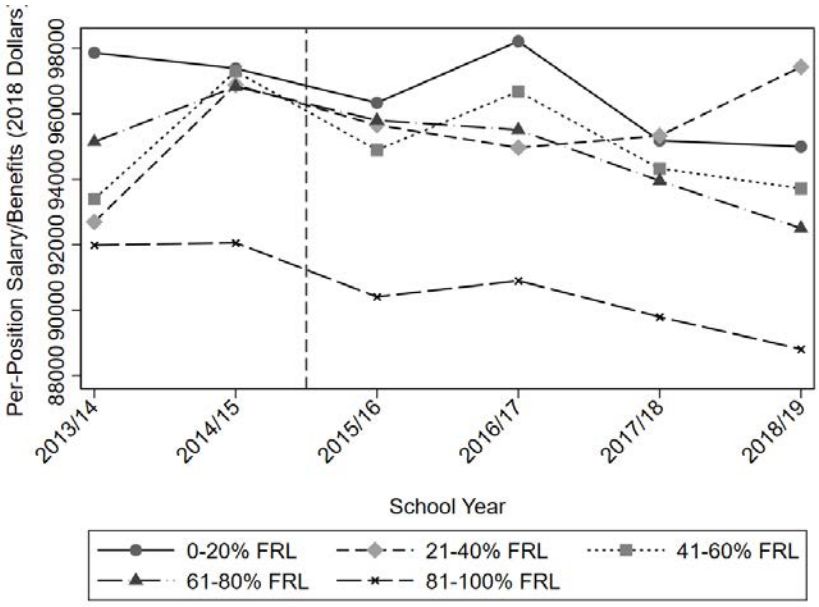

(g) Share English Learner



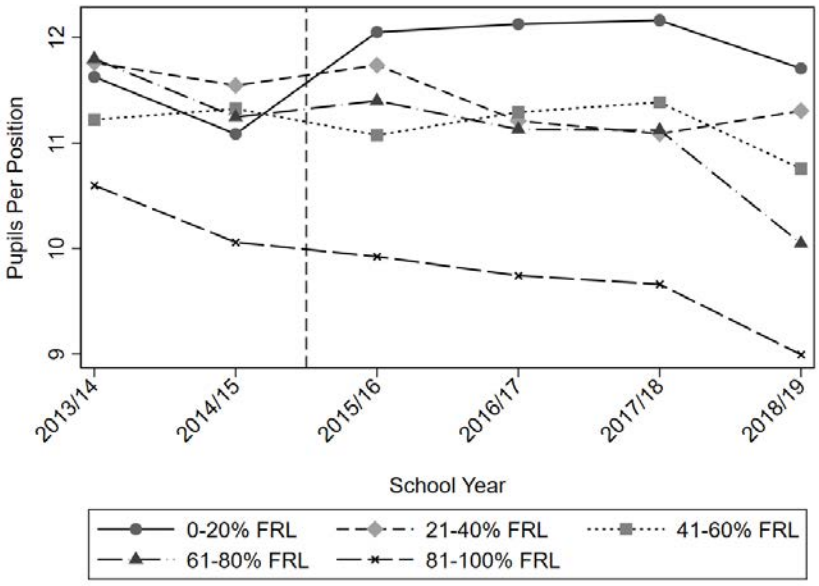

(h) Enrollment

Notes: The sample contains 403 traditional elementary schools that were continuously open over the period. The solid vertical line marks the adoption of SBB funding. The dashed vertical line marks the end of the SBB transition period.

**Appendix Figure A9. Per-Position Expenditures on Salary/Benefits and Pupils Per Position, by FRL Group**



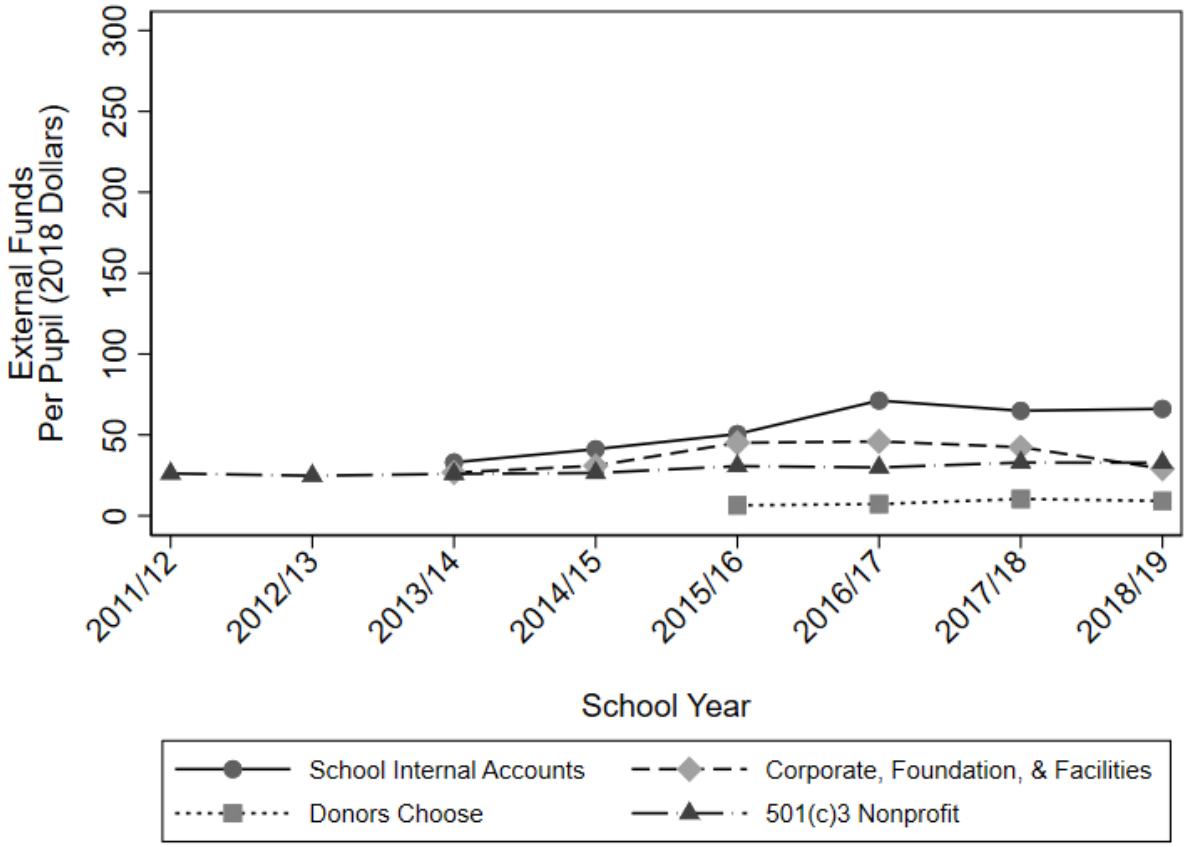

(a) Per Position Expenditures on Salary/Benefits, by FRL Group




(b) Pupils Per Position, by FRL Group

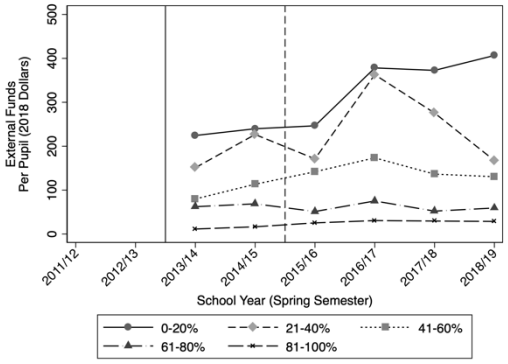
Notes: The sample includes 403 traditional public elementary schools that were continuously open during the sample period.

**Appendix Figure A10. Average Per-Pupil Dollars Raised by Source, Unconditional**

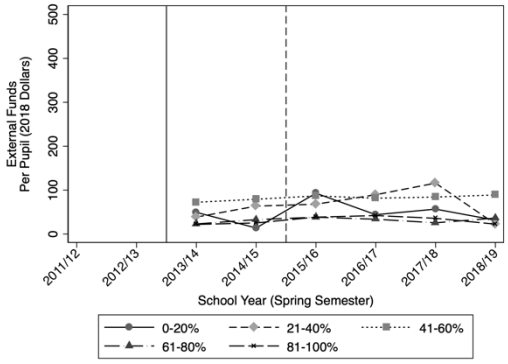



Notes: The sample is comprised of 403 traditional elementary schools that were continuously open over the period. All dollar values are reported in real 2018 dollars. We present all years available for each category.

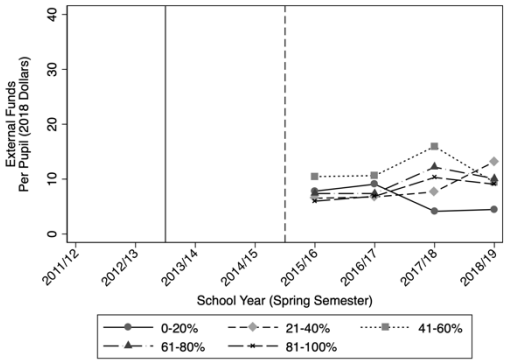
**Appendix Figure A11. Average Per-Pupil External Funds by Free/Reduced-Price Lunch Eligibility**



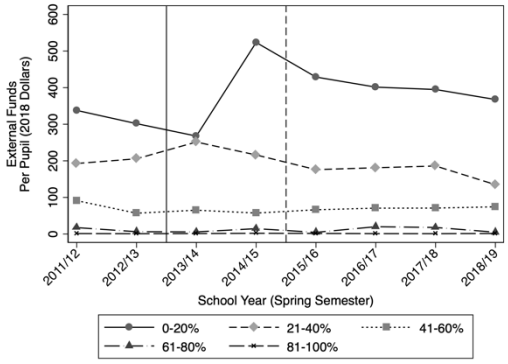

(a) School Internal Accounts




(b) Corporate, Foundation, & Facilities




(c) Donors Choose




(d) 501(c)3 Nonprofit

Notes: The sample contains 403 traditional elementary schools that were continuously open over the period. Average per-pupil external funds are reported in 2018 dollars. The solid vertical line marks the adoption of SBB funding. The dashed vertical line marks the end of the SBB transition period.

## Appendix Table A1. Summary Statistics by Free/Reduced-Price Lunch Eligibility Bin

| | (1) 0-20% | (2) 21-40% | (3) 41-60% | (4) 61-80% | (5) 81-100% | (6) Diff.: (1)-(5) | (7) Diff.: (1)-All Others |
|---|---|---|---|---|---|---|---|
| Panel A. School Characteristics | | | | | | | |
| Share FRL | 0.153 | 0.301 | 0.496 | 0.710 | 0.939 | -0.785*** | -0.703*** |
| | (0.024) | (0.065) | (0.061) | (0.060) | (0.045) | (0.006) | (0.011) |
| Share Black | 0.045 | 0.222 | 0.305 | 0.261 | 0.546 | -0.500*** | -0.442*** |
| | (0.037) | (0.229) | (0.320) | (0.357) | (0.435) | (0.026) | (0.024) |
| Share Hispanic | 0.171 | 0.219 | 0.315 | 0.427 | 0.402 | -0.231*** | -0.218*** |
| | (0.057) | (0.114) | (0.221) | (0.267) | (0.409) | (0.027) | (0.024) |
| Share White | 0.629 | 0.413 | 0.263 | 0.225 | 0.022 | 0.607*** | 0.553*** |
| | (0.107) | (0.183) | (0.159) | (0.172) | (0.045) | (0.025) | (0.026) |
| Share English Learner | 0.043 | 0.071 | 0.118 | 0.201 | 0.196 | -0.153*** | -0.142*** |
| | (0.026) | (0.047) | (0.087) | (0.132) | (0.203) | (0.013) | (0.011) |
| Share Special Education | 0.099 | 0.098 | 0.115 | 0.127 | 0.143 | -0.044*** | -0.039*** |
| | (0.034) | (0.043) | (0.038) | (0.038) | (0.053) | (0.008) | (0.008) |
| Magnet | 0.147 | 0.300 | 0.440 | 0.171 | 0.077 | 0.070 | 0.027 |
| | (0.343) | (0.410) | (0.507) | (0.363) | (0.225) | (0.082) | (0.082) |
| Enrollment | 648 | 586 | 569 | 670 | 545 | 104* | 89 |
| | (253) | (222) | (212) | (290) | (291) | (62) | (61) |
| Panel B. Per-Pupil Expenditures and External Fundraising | | | | | | | |
| Per-Pupil Expenditures | 8,678.25 | 9,310.14 | 9,170.42 | 9,173.16 | 10,365.64 | -1,687.39*** | -1,447.16*** |
| | (1,487.72) | (1,999.90) | (1,078.33) | (1,129.90) | (1,612.46) | (363.07) | (360.65) |
| School Internal Accounts | 340.98 | 264.05 | 134.22 | 66.75 | 28.43 | 312.56*** | 290.02*** |
| | (252.95) | (214.39) | (125.79) | (107.56) | (53.95) | (59.78) | (59.88) |
| Corporate, Foundation, & Facilities | 56.78 | 73.63 | 81.84 | 29.19 | 35.55 | 21.23 | 16.84 |
| | (62.64) | (188.87) | (233.68) | (47.42) | (57.99) | (15.15) | (15.48) |
| Donors Choose | 6.25 | 8.24 | 11.58 | 9.53 | 8.05 | -1.80 | -2.17 |
| | (7.21) | (8.42) | (11.18) | (8.29) | (9.94) | (1.79) | (1.77) |
| 501(c)3 Nonprofit | 384.35 | 182.79 | 60.66 | 20.33 | 0.99 | 383.36*** | 368.32*** |
| | (301.80) | (168.05) | (76.92) | (54.04) | (11.72) | (71.24) | (71.26) |
| Observations (Schools) | 17 | 20 | 25 | 35 | 306 | | |

Notes: The sample contains 403 traditional elementary schools between the 2015-16 and 2018-19 school years. Per-pupil expenditures are reported in 2018 dollars. Per-pupil expenditures exclude central office expenditures on behalf of schools. School Internal Accounts and Corporate, Foundation, and Facilities funds are sub-categories of funds included in total per-pupil expenditures. All variables are averaged at the school level across the four school years in the sample. Schools are divided into FRL-eligibility bins based on average school-level eligibility between 2015-16 and 2018-19. Columns (1)-(5) report means and standard deviations in parentheses. Columns (6) and (7) report differences in means and heteroskedasticity-robust standard errors in parentheses. Asterisks indicate statistical significance: * p<0.10, ** p<0.05, and *** p<0.01.

**Appendix Table A2. Top-five ranked schools in terms of per-pupil dollars raised in each facility category**

| Rank | School Name | FRL group | Average total dollars raised | Average dollars raised per pupil | Average raised as a percentage of the school budget |
|---|---|---|---|---|---|
| | | | *Parking lot rental* | | |
| 1 | Inter-American Magnet | 41-60% | 722,383 | 1,046 | 11% |
| 2 | William B Ogden School | 21-40% | 749,550 | 787 | 5% |
| 3 | Joseph Brennemann School | 81-100% | 125,111 | 296 | 3% |
| 4 | Walt Disney Magnet School | 61-80% | 308,514 | 197 | 2% |
| 5 | Lasalle Language Academy School | 21-40% | 46,773 | 85 | 1% |
| | | | *Cellular tower rental* | | |
| 1 | Manuel Perez Jr Elementary School | 81-100% | 72,668 | 231 | 2% |
| 2 | Stone Scholastic Academy | 41-60% | 125,685 | 201 | 2% |
| 3 | Peter Cooper Dual Language Academy | 81-100% | 92,529 | 194 | 2% |
| 4 | Luke O'Toole School | 81-100% | 65,855 | 175 | 2% |
| 5 | John Gregory School | 81-100% | 56,919 | 157 | 1% |
| | | | *Vending* | | |
| 1 | Peter Cooper Dual Language Academy | 81-100% | 7,024 | 15 | 0% |
| 2 | A Philip Randolph Magnet School | 81-100% | 2,196 | 4 | 0% |
| 3 | George Washington Carver Elementary | 81-100% | 1,864 | 4 | 0% |
| 4 | Arthur A Libby School | 81-100% | 1,064 | 3 | 0% |
| 5 | William E B Dubois School | 81-100% | 634 | 3 | 0% |
| | | | *Other facilities rental* | | |
| 1 | Peirce Sch. Of International Studies | 61-80% | 9,521 | 9 | 0% |
| 2 | Audubon Elementary School | 21-40% | 4,938 | 9 | 0% |
| 3 | Edgebrook School | 0-20% | 1,548 | 3 | 0% |
| 4 | Ravenswood School | 41-60% | 1,462 | 3 | 0% |
| 5 | Ryder Math/Sci Specialty School | 81-100% | 625 | 2 | 0% |

Notes: Calculations based on average per-pupil revenue over the 2015/16-2018/19 school years. All dollar values are in 2018 dollars. Schools are divided into FRL-eligibility bins based on average school-level eligibility between 2015-16 and 2018-19.

## Appendix B: Data

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Table of Contents



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### I. Main Data Sources

#### A. CPS Budget Books

We obtained full budget data ("Budget Books") from Chicago Public Schools (CPS) for fiscal years 2015-2021, which roughly correspond to the 2013/14-2019/20 school years. We note that there is typically a one-year lag in reporting "ending" budgets (versus appropriations, which are reported contemporaneously). These Budget Book data contain information at the school-by-fund grant-by-account-by-program-by-fiscal-year level. An example of a line-item (observation) in these data is the total amount of budgeted funds for Lincoln Elementary (school) from student-based budgeting (fund grant) for teacher salaries (account) for music (program) in FY2015 (fiscal year). For most analyses, we aggregate these data up to the school-by-fund-by-year level, although in some cases we disaggregate to explore how funds were spent (e.g., by account). Funds are broad classifications that contain multiple fund grants. As an example, Fund 114 is the "Special Education Fund" and is comprised of the following eleven fund grants: Special Education Fund, State Special Education Block Grant, Temporarily Assigned Teachers, Diverse Learner Supports & Services - Pilot Program, Special Education Workload Reduction, Special Education – Transportation, Special Education - Non-Public Tuition, Summer Special Education Program, Transportation - Safety Personnel, Tuition Handicap Children-Other Dist, Special Education Transportation – Summer.

CPS Budget Books are public-use and can be obtained here: https://www.cps.edu/about/finance/budget/

In addition to the Budget Books data, we also obtained school-level budget data for fiscal years 2013-2021, which roughly correspond to the 2011/12-2019/20 school years. These data provide information on total budgeted funds at the school level, although they are not broken down by fund nor by expenditure category (e.g., program or account).

#### B. IRS Data from 990 and 990EZ Tax Returns

We obtained data extracted from tax return forms 990 and 990-EZ that were filed by 501(c)3 nonprofit organizations with the Internal Revenue Service (IRS). The extracted information (from paper-based forms) included the following variables: EIN (Employer Identification Number, tax period (month and year of filing), assets, and revenue. We obtained these data from the Urban Institute's National Center for Charitable Statistics (NCCS) for tax years 2015-2017 and the IRS for tax years 2018-2021.

Raw Files from the IRS can be downloaded here: https://www.irs.gov/statistics/soi-tax-stats-annual-extract-of-tax-exempt-organization-financial-data

The Urban Institute's NCCS data can be found here: https://nccs.urban.org/

To align tax-filing data with school years, we used the following assignment rules (based on the reported month-year information for filing reported in the data):

1) For any tax form filed during the summer months (May, June, July, August, September), we assumed that all reported revenues were spent during the previous school year. For example, if an organization filed its return in June 2014, we assumed that all reported revenues were spent during the 2013/14 school year.
2) For any tax form filed during the fall semester (October, November, December), we assumed that some of the revenue was spent during the current school year and some was spent during the previous school year. We used the following weights: October (1/8 in current year, 7/8 in previous year); November (2/8 in current year, 6/8 in previous year); December (3/8 in current year, 5/8 in previous year).
3) For any tax form filed in the spring semester (January, February, March, April), we assumed that some of the revenue was spent during the current school year and some was spent during the previous school year. We used the following weights: January (4/8 in current school year, 4/8 in previous year); February (5/8 in current school year, 3/8 in previous year); March (6/8 in current school year, 2/8 in previous year); April (7/8 in current school year, 1/8 in previous year).

## C. National Center for Charitable Statistics (NCCS) Business Master Files

We obtained Employer Identification Numbers (EINs) for education-related nonprofit organizations in Chicago, IL from month-by-year Business Master Files (BMFs) published by the National Center for Charitable Statistics (NCCS). These files spanned January 2010-April 2020. These NCCS BMFs are cleaned versions of information published by the Internal Revenue Service (IRS) and can be obtained here: https://nccs-data.urban.org/data.php?ds=bmf

From these files, we extracted the Employer Identification Number (EIN) of all nonprofit organizations that (1) were located in a Chicago zip code (see below) and (2) had a National Taxonomy of Exempt Entities (NTEE) classification of "B94: Parent Teacher Group" or contained any of the following keywords: PTA, PTO, PTSA, Booster, Parent, Teacher, Friends. We then matched these organizations by hand to CPS elementary schools based on name and address.

We obtained zip codes for the city of Chicago from the City of Chicago Data Portal: https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-ZIP-Codes/gdcf-axmw

### D. Donors Choose

Donors Choose is an online platform that allows individual teachers to request funds for specific projects. We obtained proprietary data directly from Donors Choose at the funded project-by-school-by-year level for the 2015/16-2018/19 school year. We collapsed this information to the school-by-year level to create variables measuring: (1) total dollars donated to the school and (2) the total number of funded projects. Researchers interested in obtaining data from Donors Choose should consult the following website: https://www.donorschoose.org/data

### E. Common Core of Data (National Center for Education Statistics)

We obtained school-level information for the 2010/11-2019/2020 school years on school location, enrollment, and student demographic characteristics from the Common Core of Data using the Urban Institute's Education Data Portal. Specifically, we obtained the following variables: school address (and associated latitude/longitude coordinates), total enrollment, and enrollment by gender, grade, race/ethnicity, and free/reduced-price lunch eligibility. For more information, see: https://educationdata.urban.org/data-explorer

### F. Chicago Public Schools Demographic Data

We obtained school-level information for the 2010/11-2019/2020 school years on the enrollment of special education and bilingual students from Chicago Public Schools (CPS). These public-use data can be downloaded here: https://www.cps.edu/about/district-data/demographics/

## II. Other Data Sources

### A. Illinois State Board of Education (ISBE) Per-Pupil Expenditures

We obtained school-level budget data for the 2018/19 school year from the Illinois State Board of Education through the National Education Resource Database on Schools (NERD$). These data are public-use and are available here: https://edunomicslab.org/nerds/

We used the following variables:

- pp_total_raw_IL: per-pupil total expenditure total
- pp_site_raw_IL: per-pupil site expenditure total

We used the Illinois data file called IL_1819_final_October_8th_21.xlsx (downloaded on December 10, 2021).

### B. Census Tract Data from the American Community Survey

We obtained census-tract-level data from the American Community Survey (5-Year Estimates from 2012-2016) from the United States Census Bureau (downloaded on July 19, 2022). We matched our sample of CPS elementary schools to census tracts based on school address (latitude/longitude). Census tract data can be downloaded here: https://data.census.gov/cedsci/

We obtained a Shapefile (.shp) containing all census tracts in Cook County, IL to match school locations (latitude/longitude) using the STATA command "geoinpoly." We downloaded the shapefile containing 2010 census tract boundaries from: https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2010.html

## III. Chicago Public Schools School Funding Formulas

We obtained information on CPS school funding formulas from annually published budget books (specific formula sources are noted below). We were specifically interested in per-pupil rates for the following categories: Student-Based Budget, Supplemental General State Aid (later Supplemental Aid), and Title I.

### A. Student-Based Budget Base Rate

| Fiscal Year | Base Rate (Per-Pupil Nominal Dollars) | Base Rate (Per-Pupil 2018 Dollars) | Source |
|---|---|---|---|
| 2014 | $4,140.03 | $4,357.80 | Appendix B of Fiscal Year 2014 Budget |
| 2015 | $4,390 | $4,611.37 | Appendix B of Fiscal Year 2015 Budget |
| 2016 | $4,390 | $4,563.63 | Appendix B of Fiscal Year 2016 Budget |
| 2017 | $4,087 | $4,173.96 | Appendix B of Fiscal Year 2017 Budget |
| 2018 | $4,290 | $4,290.00 | Appendix B of Fiscal Year 2018 Budget |
| 2019 | $4,397 | $4,332.48 | Appendix B of Fiscal Year 2019 Budget |
| 2020 | $4,506.93 | $4,388.50 | Appendix B of Fiscal Year 2020 Budget |

CPS introduced Equity Grants in FY2020. Equity Grants provided an additional $750 per pupil to elementary schools with enrollments of fewer than 450 students (see: Appendix B of Fiscal Year 2020 Budget).

### B. Supplemental General State Aid (SGSA)

SGSA funds were distributed across all schools in CPS in a way that was directly proportional to the enrollment of students who were eligible for free/reduced-price lunch. Title I funds, on the other hand, were only distributed to the subset of schools that had school-level poverty indices (a specific measure calculated by CPS) above 40 percent. The Title I formula distributed funds on a

per-pupil basis to all schools above the 40 percent poverty-index threshold. The formula-determined per-pupil rate increased for every 1 percentage point above the 40 percent threshold.

**SGSA Formula by Fiscal Year**

| Fiscal Year | Formula (Nominal Dollars per free/reduced lunch eligible pupil) | Formula (2018 Dollars per free/reduced lunch eligible pupil) | Source |
|---|---|---|---|
| 2012 | $740 | $800.97 | Appendix B of Fiscal Year 2012 Budget |
| 2013 | $745.67[1] | $796.39 | Appendix B of Fiscal Year 2013 Budget |
| 2014 | $794 | $835.77 | Appendix B of Fiscal Year 2014 Budget |
| 2015 | $783 | $822.48 | Appendix B of Fiscal Year 2015 Budget |
| 2016 | $790.36 | $821.62 | Appendix B of Fiscal Year 2016 Budget |
| 2017 | $827 | $844.60 | Appendix B of Fiscal Year 2017 Budget |
| 2018 | $846 | $846.00 | Appendix B of Fiscal Year 2018 Budget |
| 2019 | $910 | $896.65 | https://www.cps.edu/about/finance/budget/budget-2019/schools-and-networks-2019/ |
| 2020 | $920 | $895.82 | https://www.cps.edu/about/finance/budget/budget-2020/schools-and-networks-2020/ |

## C. Title I

Title I is distributed to schools based on a formula that contains a school-level poverty (index) measure. The poverty index is a weighted average of (1) the percentage of students in the school who are eligible for free/reduced lunch and (2) the percentage of students who live in families receiving TANF benefits. The weights were 60 percent and 40 percent, respectively, during fiscal years 2012-2018. In fiscal years 2019 and 2020, the weights were 70 percent and 30 percent, respectively.

If a school had a poverty index above 40 percent, that school received Title I funds according to a formula that increased the per-student transfer (linearly) with the poverty index. In fiscal year 2014, for example, the Title I formula for the per-student transfer was $430 plus an additional $24 for every 1 percentage point increase in the school's poverty index.

**Title I Formula by Fiscal Year**

| Fiscal Year | Formula | Formula (2018 Dollars) | Source |
|---|---|---|---|
| 2012 | Base: $430 per free/reduced lunch eligible student | Base: $465.43 per free/reduced lunch eligible student | Appendix B of Fiscal Year 2012 Budget (formula is implied by |

[1] District schools also received a supplement of $90.19 per free/reduced lunch eligible student that was not given to Charter/Contract schools.

| | | | |
|---|---|---|---|
| | Increase: $15 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Increase: $16.24 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | examples on page 273) |
| 2013 | Base: $430 per free/reduced lunch eligible student<br>Increase: $22 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $459.25 per free/reduced lunch eligible student<br>Increase: $23.50 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2013 Budget |
| 2014 | Base: $430 per free/reduced lunch eligible student<br>Increase: $24 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $452.62 per free/reduced lunch eligible student<br>Increase: $25.26 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2014 Budget |
| 2015 | Base: $430 per free/reduced lunch eligible student<br>Increase: $21.60 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $451.68 per free/reduced lunch eligible student<br>Increase: $22.69 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2015 Budget |
| 2016 | Base: $573 per free/reduced lunch eligible student<br>Increase: $23 per free/reduced lunch eligible student for every 1 percentage point increase in | Base: $595.66 per free/reduced lunch eligible student<br>Increase: $23.91 per free/reduced lunch eligible student for every 1 percentage point | Appendix B of Fiscal Year 2016 Budget |

| | | | |
|---|---|---|---|
| | school-level poverty index | increase in school-level poverty index | |
| 2017 | Base: $851.80 per free/reduced lunch eligible student<br>Increase: $17.04 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $869.92 per free/reduced lunch eligible student<br>Increase: $17.40 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2017 Budget |
| 2018 | Base: $802 per free/reduced lunch eligible student<br>Increase: $16.04 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $802 per free/reduced lunch eligible student<br>Increase: $16.04 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2018 Budget |
| 2019 | Base: $617.50 per free/reduced lunch eligible student<br>Increase: $12.35 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $608.44 per free/reduced lunch eligible student<br>Increase: $12.17 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2019 |
| 2020 | Base: $617.50 per free/reduced lunch eligible student<br>Increase: $15 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Base: $601.27 per free/reduced lunch eligible student<br>Increase: $14.61 per free/reduced lunch eligible student for every 1 percentage point increase in school-level poverty index | Appendix B of Fiscal Year 2020 |

## IV. Chicago Public Schools Budget Fund Codes (3-Digit Level)

- 114: Special Education Fund

- 115: General Education Fund
- 117: Tuition Based Program
- 124: School Special Income Fund
- 127: Playground Operating Fund
- 129: CTPF Pension Levy (Chicago Teachers Pension Fund)
- 210: Workers' & Unemployment Compensation/Tort
- 220: Federal Special Education IDEA Programs
- 225: Supplemental General State Aid
- 230: Public Building Commission O & M
- 312: Lunchroom Fund
- 314: Lunchroom - Lighthouse
- 324: Miscellaneous Federal & State Block Grants
- 326: Government Funded School Based Grants
- 332: NCLB Title I Regular Fund
- 334: NCLB Title 1 - Neglected & Delinquent
- 335: Education Jobs Fund FY2011
- 336: NCLB Title V Fund
- 353: NCLB Title V Fund
- 356: Title III - Emergency Immigrant Language Acquisition
- 358: Title IV Safe & Drug Free Schools
- 362: Early Childhood Development
- 367: Title I - Comprehensive School Reform
- 369: Title I - School Improvement Carl Perkins

## V. Coding of Expenditure Categories in Chicago Public Schools Budget Books

**Salary/Benefits**

| | |
|---|---|
| A51100 | Teacher Salaries - Regular |
| A51130 | Teacher Salaries - Extended Day |
| A51140 | Termination Payout of Sick & Vacation Days - Teachers |
| A51300 | Regular Position Pointer |
| A51320 | Bucket Position Pointer |
| A51330 | Benefits Pointer |
| A51350 | Substitute Salary & Benefits consolidated Account |
| A51500 | Teacher Salaries - Substitutes |
| A52100 | Career Service Salaries - Regular |
| A52130 | Career Service Salaries - Extended Day |
| A52140 | Career Service Salaries - Other |
| A52150 | Termination Payout of Sick & Vacation Days - ESPs |
| A52400 | Career Service Salaries - Overtime |
| A52500 | Career Service Salaries - Substitutes |
| A52800 | Career Service Salaries - Adjustments |
| A56215 | Property - Permanent Improvement |
| A57105 | Pensions - Employer, Teacher |
| A57135 | Pensions - Employee, Teacher |

| | |
|---|---|
| A57205 | Pensions - Employee, ESP |
| A57210 | Pensions - ESP Employer |
| A57305 | Hospitalization & Dental Insurance - Employer |
| A57405 | Medicare |
| A57415 | FICA |
| A57505 | Unemployment Compensation |
| A57605 | Workers Compensation |

**Contracts**

| | |
|---|---|
| A54105 | Services: Non-technical/Laborer |
| A54125 | Services - Professional/Administrative |
| A54130 | Services - Non Professional |
| A54305 | Tuition |
| A54320 | Student Tuition - Charter Schools |
| A54405 | Services - Telephone & Telegraph |
| A54505 | Seminar, Fees, Subscriptions, Professional Memberships |
| A54510 | Services - Equipment Rental |
| A54520 | Services - Printing |
| A54525 | Services - Printing Other |
| A54530 | Services - Insurance - General Liability - Premium |
| A54555 | Meals, Lodging, & Travel - Other |
| A54560 | Delivery Service |
| A54565 | Parent Reimbursements |
| A56105 | Services - Repair Contracts |
| A57705 | Services - Space Rental |

**Commodities/Equipment**

| | |
|---|---|
| A53205 | Commodities – Food Supplies |
| A53205 | Commodities – Supplied Food |
| A53215 | Commodities – Purchased Food |
| A53220 | Commodities – Food – Confections |
| A53304 | Instructional Materials (Digital) |
| A53305 | Instructional Materials (Non-Digital) |
| A53306 | Commodities: Software (Non-Instructional) |
| A53307 | Commodities: Software Licenses (Instructional) |
| A53405 | Commodities – Supplies |
| A53510 | Commodities – Postage |
| A55005 | Property – Equipment |
| A55010 | Property – Furniture |

**Transportation**

| | |
|---|---|
| A54205 | Travel Expense |
| A54210 | Pupil Transportation |

A54210 Student Busing Services
A54215 Car Fare
A54220 Auto Reimbursement

**Contingencies**

A57915 Miscellaneous - Contingent Projects
A57940 Miscellaneous Charges

## VI. Coding of School Special Income in Chicago Public Schools Budget Books

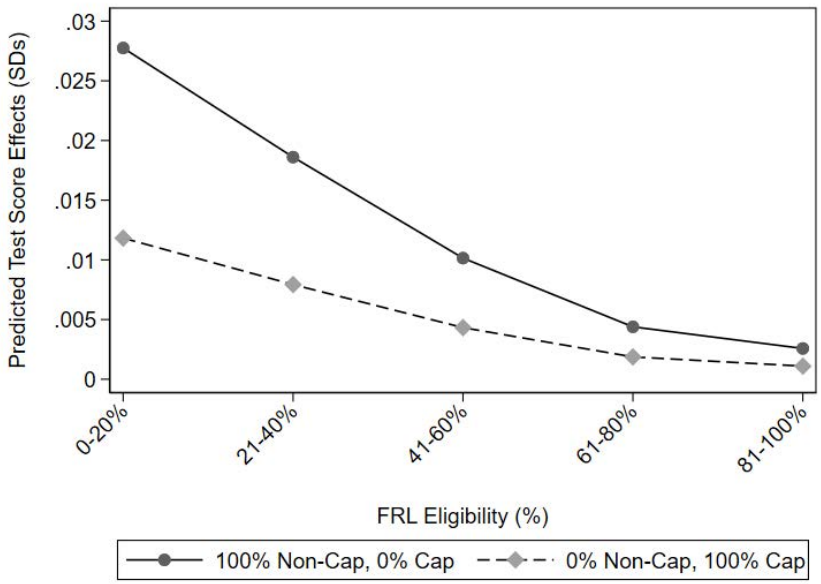
We divide School Special Income (Fund 124) into two main sources. First, there are what we call "Corporate, Foundation, and Facilities" funds. This category includes grants that foundations and corporations made directly to the school and revenue generated through private use of a school's facilities (e.g., rental of athletic fields and parking lots, or cell phone towers on school grounds). Second, we identify a category called "School Internal Accounts," which may include funds directed to the school from Friends of School organizations, PTAs, or even student fees.

## VII. External Fundraising, Test Scores, and the Predicted Effects of Redistribution

Using causal estimates of the effect of expenditures on student test scores from the existing literature in the economics of education,[2] we rescaled our estimates of school-level per-pupil external funds into test score standard deviation units (SDs). Appendix Figure B1 illustrates average predicted effects of externally fundraised dollars on test scores – separately by free/reduced lunch eligibility bin – under two different assumptions about the share of fundraised dollars allocated to capital and non-capital projects. We first assumed that 100 percent of funds were allocated to non-capital expenses (solid line) and then assumed that 100 percent of the funds were allocated to capital expenses (dashed line).

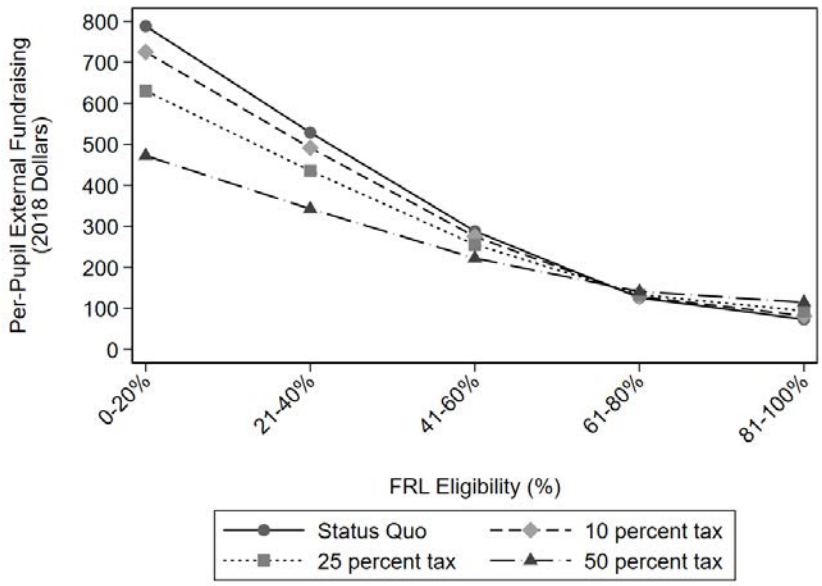
Allocating all external funds to non-capital expenses is predicted to increase test scores by 0.028 SDs for schools in the lowest FRL-eligibility bin and by 0.003 SDs for schools in the highest FRL-eligibility bin. Notably, these effects vary only because the average amount of dollars raised varies by school FRL. We are not assuming heterogeneity in the effect of fundraised dollars by school FRL eligibility. Allocating all external funds to capital expenses, in contrast, is predicted to increase test scores by 0.012 SDs for schools in the lowest FRL-eligibility bin and by 0.001 SDs for schools in the highest FRL-eligibility bin.

[2] Jackson & Mackevicius (2021) conducted a meta-analysis of the effects of school funding on student outcomes, using plausibly causal estimates generated across 31 studies. Their estimates suggest that a $1,000 increase in per-pupil funding that is sustained across 4 years led to a corresponding 0.035 standard deviation increase in test scores. If the funds were expended on non-capital resources, the effect was a 0.043 standard deviation increase in test scores compared to a 0.015 standard deviation increase associated with capital spending.




**Appendix Figure B1. Predicted Effects of External Fundraising on Test Scores**
Notes: The sample is comprised of 403 traditional elementary schools. Test scores are in standard deviation units.

We then compared the status quo (i.e., unregulated external fundraising) to hypothetical rules that the district could implement to redistribute externally fundraised dollars across schools. In Appendix Figure B2, we show the effects of a "tax" on externally fundraised dollars ranging from 10 to 50 percent. For example, under a 10 percent tax policy, 10 percent of school-level externally fundraised dollars would be centralized and then redistributed equally across all schools in the district (while the remaining 90 percent of fundraised dollars would remain at the school). Appendix Figure B2 illustrates the effects of a 10, 25, and 50 percent tax, respectively (along with the status quo policy of no redistribution).

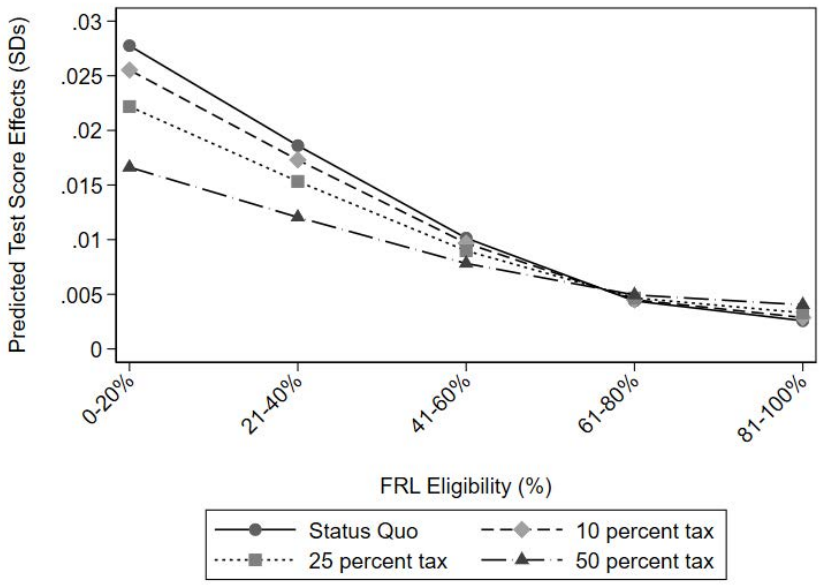



**Appendix Figure B2. Per-Pupil External Fundraising, With and Without Redistribution**

Notes: The sample is comprised of 403 traditional elementary schools. Per-pupil external funds are reported in 2018 dollars.

The 50 percent tax policy would have the largest impact on schools with the lowest FRL eligibility: average per-pupil externally fundraised dollars would decline from $788 to around $472. Despite these large declines, however, the resulting average increase in per-pupil externally fundraised dollars at the highest FRL-eligibility schools would only be $41.

As a final exercise, we rescaled the dollar estimates in the previous figure in terms of test score units (SDs). The associated predicted changes in student test scores would be about a 0.011 standard deviation decline in the highest FRL schools and a 0.001 standard deviation increase at the lowest FRL schools. In other words, redistribution of externally fundraised dollars would have a negligible effect on test score outcomes in schools serving the highest shares of FRL-eligible students.




**Appendix Figure B3. Predicted Effects of Redistribution on Test Scores**

Notes: The sample is comprised of 403 traditional elementary schools. Per-pupil external funds are reported in 2018 dollars. Test scores are in standard deviation units.

Because externally raised dollars are concentrated among relatively few schools, even the most stringent rules for redistribution of externally raised funds (a 50 percent tax) would result in minimal changes in per-pupil expenditures at the schools that have few fundraised dollars while significantly reducing the per-pupil expenditures at the schools that have the capacity to raise the most dollars.

## APPENDIX REFERENCES

Jackson, C. Kirabo, and Claire Mackevicius. "The Distribution of School Spending Impacts." NBER Working Paper No. Cambridge, MA: National Bureau of Economic Research, 2021. https://www.nber.org/system/files/working_papers/w28517/w28517.pdf.