Private Contributions and Public School Resources

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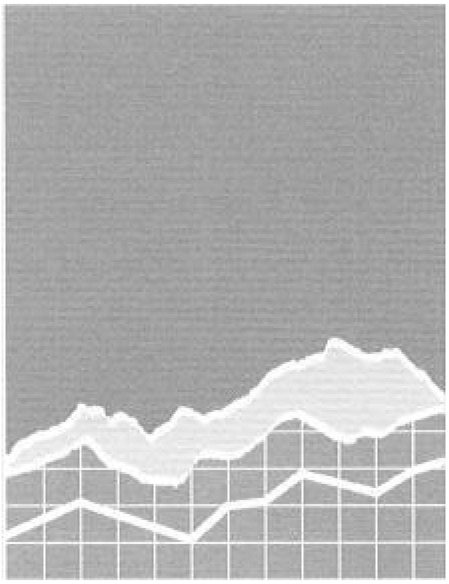

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PRIVATE CONTRIBUTIONS AND PUBLIC SCHOOL RESOURCES

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Abstract

In the wake of school finance reforms that limit local tax revenue and, more recently, state budget cuts that have threatened K-12 education spending, an increasing number of schools and school districts have appealed to parents and communities for voluntary contributions to augment school resources. Of course, not all schools benefit equally from these contributions leading to a common concern that voluntary contributions create inequities in school funding across communities. In this paper we examine the size and distribution of voluntary contributions to California's K-12 public schools in 2001. In addition, we examine how contributions have affected the distribution of resources across schools. Our results indicate that while some schools have been quite successful in raising voluntary contributions, overall, contributions have not led to large inequities in the distribution of resources among high- and low-income schools. Specifically, schools raising particularly high levels of contributions, over $500 per pupil, do tend to have more resources, but these schools are rare and very small. Over ninety-nine percent of California elementary students attend schools where contributions have almost no effect on inputs.

JEL Classifications: I22, H72, H40

Key Words: Voluntary Contributions, Public School Finance, School Resources

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I. Introduction

Over the past year, budget shortfalls have led many states to cut spending on K-12 education. In response to those cuts, many schools have turned to voluntary contributions from parents and others to support programs that would otherwise be curtailed or eliminated. For example, popular press stories now abound of concerned parents banding together to raise large sums of money to save the position of a favorite teacher, purchase classrooms supplies, or update antiquated computers. Of course private contributions to public schools are not a new idea. Parent-teacher associations (PTAs) and booster clubs have long organized fundraising drives, often for specific extracurricular purchases such as athletic uniforms or playground equipment. What is relatively new is the larger scope of fundraising and the items that are being purchased. Communities around the country are increasingly turning to voluntary contributions to fund items that have traditionally been funded with government tax revenue, such as teacher salaries, class size reduction programs, and music and arts programs.

While this larger role of voluntary contributions in funding public school programs is a relatively recent phenomenon, contributions to schools across the country have also been rising steadily over the last three decades. This trend followed school finance reforms designed to equalize per-pupil revenue. In many states, such reforms have limited the ability of high-spending districts to generate revenue through local taxes. In no state has this been more pronounced than in California. As documented by Brunner and Sonstelie (1997) growth of private donations to public schools in California is directly related to two events: the California Supreme Court ruling in *Serrano v. Priest,* which mandated the equalization of per-pupil property tax revenue across districts, and Proposition 13, the 1979 property tax initiative that capped property tax rates at one percent of assessed value. Combined, these events reduced the amount of tax revenue available to many school districts, particularly wealthy districts, and prohibited school districts from raising property taxes to fund school spending in the future. In response to those restrictions, many school districts have attempted to replace lost property tax revenue with voluntary contributions. For example, a number of school districts have established educational foundations designed to channel private contributions into public schools. Prior to 1980 there were only a handful of these organizations operating in California. There are now over 500.

While schools on the receiving end of these contributions certainly welcome the assistance, the increasing prevalence of voluntary donations has raised concerns about the equity of allowing some schools to benefit while other schools, often in less affluent areas, do not have access to the same resources. In some communities, this has led to policies that cap the amount a given school or district may raise, or that restrict what items can be purchased with the funds. For example, in Portland, Oregon, individual schools may keep the first $5,000 they raise plus two-thirds of anything above that while one-third goes to the district foundation that then redistributes the funds to schools in less-affluent areas.

Yet it is unclear whether these equity concerns are well founded. Much of what we know about the magnitude and distribution of voluntary contributions to public schools is anecdotal. The newspapers are full of stories of schools that manage to raise exceptionally large amounts; however, it is likely that these schools are truly exceptional: the amount raised by the majority of schools is likely to be far more modest. In the only wide-scale studies of the level and distribution of voluntary contributions, Brunner and Sonstelie (1997, 2002) describe contributions to schools and districts in California in 1992 and 1994.[1] Those papers show a positive relationship between contribution levels and community income but also point out that the vast majority of students are in schools with contributions of less than $100 per pupil. Furthermore, there have been no studies that examine the impact of contributions on the actual resources available to students. From an equity perspective, it is important to understand not only which schools receive high levels of contributions but also whether contributions affect the distribution of inputs such as class size, technology and teacher quality.[2]

In this paper, we undertake a more thorough examination of voluntary contributions, documenting the size and distribution of contributions to California's public schools in 2001 as well as exploring the relationship between contributions and school-level resources. Consistent with Brunner and Sonstelie (1997, 2002), we find that contributions are concentrated in small and wealthy schools and school districts. We also find that, all else equal, schools use contributions to purchase more computers and teacher aides, and to lower pupil-teacher ratios and class sizes. However, contributions do not necessarily affect the distribution of these inputs between high- and low-income schools. Schools raising particularly high levels of contributions, over $500 per pupil, do tend to have more resources, but these schools are rare and very small. Over ninety-nine percent of California elementary students attend schools where contributions have almost no effect on inputs.

II. The Size and Distribution of Voluntary Contributions

As we noted in the introduction, there are only a few wide-scale studies that examine the size and distribution of voluntary contributions to public schools. This is due, in part, to the fact that schools and school districts often do not report private contributions in their official statements of revenue and expenses and even when they do, private contributions are not singled out as a distinct source of revenue. Consequently, studies that examine the distribution of dollars per pupil (e.g., Murray, Evans and Schwab, 1998) typically use data that either do not include contributions or do not identify contributions separately

[1] Addonizio (1999) documents the increase in local education foundations in Michigan and the distribution of foundations across districts with different characteristics but does not analyze the amount of contributions raised.
[2] Betts and Reuben (forthcoming) analyze the distribution of class size and teacher characteristics across schools in California and find that, while official revenue per pupil is fairly equal across districts, schools serving more low-income students tend to have somewhat smaller classes but also less experienced and educated teachers. However, they do not consider any connection between resources and voluntary contributions.

from other local revenue. However, most contributions to public schools flow through non-profit organizations with tax-exempt status, and these organizations are required to report their revenues and expenses to the state and federal government. Using those reports, we have attempted to identify all non-profits in California that direct voluntary contributions to public schools and to link each with the school or school district that it supports.

At the school level, contributions are raised primarily by PTAs, PTOs (Parent Teacher Organizations) and booster clubs. At the district level, contributions are raised primarily by local educational foundations. To identify the contributions raised by these organizations we utilized two data sources. The first is the "Charities Database" maintained by the Registry of Charitable Trusts (RCT) of the California Attorney General's Office. With the exception of PTAs, all tax-exempt nonprofit organizations supporting K-12 schools in California are required to register with the RCT. Using information contained in the Charities Database, we attempted to identify all nonprofit organizations (except PTAs) supporting K-12 schools in 2001. Because the RCT's Charities Database provides only limited information on the revenue raised by registered organizations and no information on individual PTAs, we also make use of the 2001 Master File of Tax-Exempt Organizations, maintained by the Internal Revenue Service (IRS). The IRS requires all tax-exempt organizations with gross revenues of $25,000 or more, including PTAs and all other nonprofit organizations supporting K-12 schools, to file annual financial statements. The IRS Master File contains information on the revenue raised by these organizations and a unique Employer Identification Number that can be used to match the financial information contained in the IRS Master file with the data on nonprofit organizations contained in the RCT Charities Database.

Thus, by combining the information contained in the RCT Charities database with the information contained on the IRS Master File, we can identify all nonprofit organizations supporting K-12 public schools in 2001. For the subset of organizations with gross revenues of $25,000 or more, we can also identify the gross and net revenue raised by these organizations. Brunner and Sonstelie (1996) use the same data sources to identify the revenue raised by all nonprofit organizations supporting K-12 public schools in California in 1992. We therefore refer the reader to their paper for a more detailed discussion of the methodology used to identify these nonprofit organizations.

TABLE 1
Total Net Revenue of K-12 Non-profit Organizations
1992 and 2001 Tax Years

	1992 Tax Year (Constant 2001 Dollars)		2001 Tax Year	
Type of Organization	With Gross Revenue of $25,000 or More	Net Revenue	With Gross Revenue of $25,000 or More	Net Revenue
Local Educational Foundations	294	$36,651,156	320	$96,972,199
PTAs / PTOs	654	45,280,218	1463	83,412,310
Booster Clubs/Other	310	29,006,764	322	34,149,470
Urban Foundations	6	12,323,896	13	23,890,392
Total	1264	$123,271,034	2115	$238,324,371

* 1992 Figures are from Brunner and Sonstelie (1997)

Table 1 lists the total revenue raised by nonprofit organizations supporting K-12 public schools in California during the 1992 and 2001 tax years; the 1992 data are from Brunner and Sonstelie (1997). The first column subdivides organizations into five categories: Educational Foundations, PTAs/PTOs, Booster Clubs/Other, and Urban Foundations. The "Other" category that is reported with booster clubs includes organizations such as school alumni associations and school bingo clubs. The category "Urban Foundations" includes large foundations located in urban districts, such as Los Angeles Unified. While local educational foundations and urban foundations are similar in the respect that both tend to operate at the district level, local educational foundations rely heavily on individual donations, while urban foundations rely primarily on donations from businesses and corporate sponsors.

For each type of organization, columns 2 and 4 report the total number of organizations with gross revenue of $25,000 or more in the 1992 and 2001 tax years respectively. Similarly, columns 3 and 5 report the total net revenue raised by each type of organization during the 1992 and 2001 tax years.[3] As Table 1 makes clear, contributions to California's public schools have grown sharply over the past decade. In 1992, these organizations raised approximately $123 million in constant 2001 dollars. By 2001, that amount had nearly doubled to over $238 million. Not surprisingly, the sharp increase in total contributions between 1992 and 2001 was also accompanied by a sharp increase in contributions per pupil. Specifically, in 1992 there were approximately 5.1 million students enrolled in California's public schools, implying an average contribution of $24 per pupil, measured in constant 2001 dollars. In contrast, in 2001, there were approximately 6.1 million students enrolled in California's public schools, implying an average contribution of $39 per pupil. Thus, between 1992 and 2001 contributions per pupil rose by approximately 62.5 percent.

[3] Net revenue is gross revenue minus the organization's expenses, i.e., the amount actually spent on schools.

TABLE 2

Net Revenue per Pupil by School/District Type
2001 Tax Year

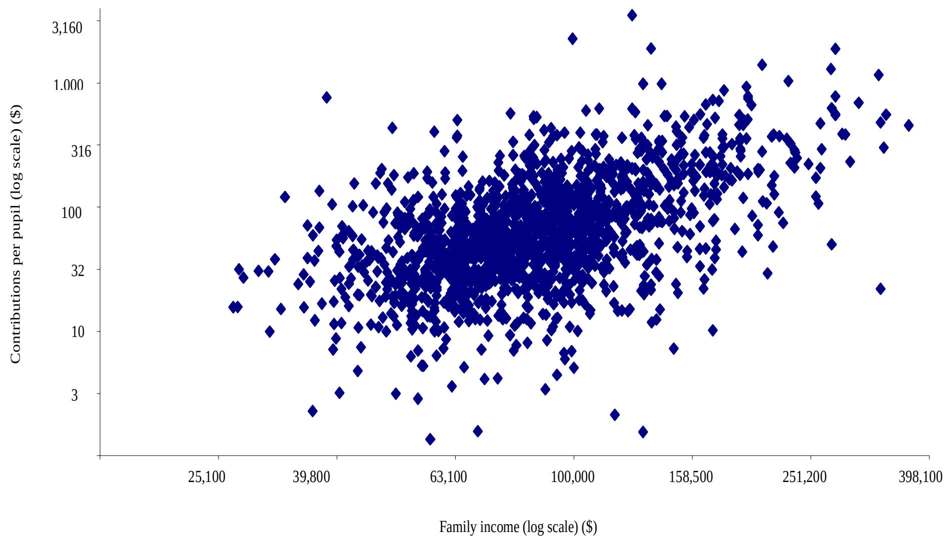
	Number of Schools/School Districts	With Gross Revenues of $25,000 or more	Average Net Revenue per Pupil	With Average Net Revenue of $100 per pupil or more	Average Net Revenue per Pupil
School Level					
Elementary/Middle	6,595	1,441	$122	427	$298
Junior/Senior High	987	267	$89	76	$227
District Level					
Elementary	330	59	$243	26	$506
Unified District	323	102	$74	22	$269
High School	91	16	$46	2	$207

* 235 elementary school districts, 3 unified school districts and 1 high school district contain just one school. We include contributions made to single school districts in the school-level figures.

Table 2 documents the average net revenue per pupil raised by K–12 nonprofit organizations in 2001. For each type of school or school district listed in column 1, column 2 shows the total number of schools or school districts operating in California during the 2001-02 school year. Among those, column 3 lists the total number with a nonprofit organization that raised over $25,000 in gross revenue, while the average revenue per pupil raised by those organizations is reported in column 4. For example, of the 6,595 elementary and middle schools in California, 1,441 (22 percent) had a nonprofit organization that raised over $25,000 in gross revenue. Among these 1,441 schools, net revenue per pupil averaged $122. Similarly, of the 330 elementary school districts in California, 59 had a nonprofit organization that raised over $25,000 in gross revenue and among those 59 districts, average revenue per pupil was $243.

The last two columns of Table 2 focus on those schools and school districts that were particularly successful in raising contributions. Column 5 shows the total number of schools and school districts with a nonprofit organization that raised $100 per pupil or more, while column 6 gives the average revenue per pupil raised by those organizations. Clearly, there are far fewer schools and districts in this group but they were able to raise substantial amounts. For example, only 427 elementary and middle schools (6.5 percent) had a nonprofit organization that raised $100 per pupil or more; among those 427 schools, contributions per pupil averaged $298. Similarly, among the 26 elementary school districts (7.9 percent) with a nonprofit organization that raised $100 per pupil or more, contributions per pupil averaged $506.

Figure 1: Family Income (2000) and School-Level Contributions per Pupil



The revenue figures reported in Tables 1 and 2 highlight several interesting facts. First, while the $238 million raised by nonprofit organizations to support public schools in California in 2001 represents a considerable sum, it nevertheless amounts to only about $39 per pupil. Second, as Table 2 makes clear, although contributions per pupil tend to be small on average, several schools and school districts have been able to raise significant amounts of private contributions. This second fact raises the question: Which schools have been most successful in raising voluntary contributions?

Brunner and Sonstelie (2002) provide an answer to that question using data from 1994. They develop a model of partial cooperation among parents in making voluntary contributions to their public schools that predicts contributions per pupil should increase with family income and decline with school size. In their model, school size (student enrollment) represents the price parents face for increasing spending per pupil. An increase in student enrollment increases the incentive for parents to free ride and hence reduces the fraction of parents who contribute to their public school. As a result, the price of increasing spending per pupil by one dollar rises as the school size increases. Using data on voluntary contributions to California's public schools in 1994, they find that contributions per pupil increase with family income and decline with school size, supporting the predictions of their model. Specifically, in their preferred specification, they obtain an estimate of the income elasticity of demand for contributions per pupil of 0.55 and an estimate of the school size elasticity of demand of –0.56. Thus, their results

Table 3

School Level Contributions Per Pupil, by Quintiles of Family Income: Elementary and Middle Schools (Pupil Weighted)

2000 Average Family Income	Number of Schools	%With Gross Revenues of $25,000 or more	Average Net Revenue per Pupil	% Average Net Revenue of $100 per pupil or more	Average Net Revenue per Pupil
Less than $42,276	1094	2.4%	$53	0.4%	$364
$42,276 - $53,171	1354	6.2	37	0.4	160
$53,172 - $65,480	1328	15.8	49	1.2	246
$65,481 - $86,320	1377	30.0	59	4.9	158
$86,321 and above	1426	50.4	136	23.3	267

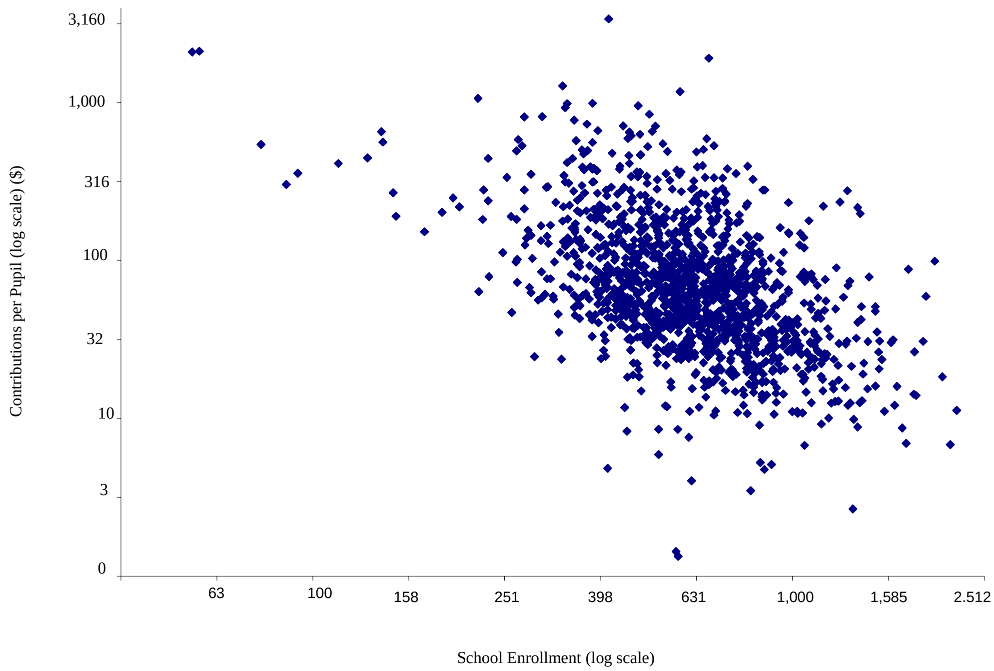
suggest that, all else equal, a doubling of school size would lead to a 56 percent decline in contributions per pupil.

Following Brunner and Sonstelie (2002), we examine how the distribution of contributions per pupil across California schools and school districts are related to family income and school or school district size. Figure 1 first illustrates the relationship between family income in 2000 and school-level contributions in 2001. The vertical axis measures contributions per pupil for schools with contributions of $25,000 or more and for each school, the horizontal axis gives the average income of families in the school's census tract. Consistent with the findings of Brunner and Sonstelie (2002), contributions per pupil appear to be positively related to family income.[4]

This relationship between family income and school-level contributions per pupil is examined in greater detail in Table 3. The table summarizes the distribution of contributions per pupil among elementary and middle schools by quintiles of family income, where the quintiles are weighted by student enrollment. For example, of all students attending an elementary or middle school, 20 percent attended a school in which average family income was less than $42,276, while 20 percent attended a school in which average family income was greater than or equal to $86,321. For each income range reported in column 1, column 2 lists the number of schools with average family income within that range. The total number of schools with a nonprofit organization that raised over $25,000 in gross revenue is shown in column 3, while column 4 reports the average revenue per pupil raised by those organizations. There is a

[4] Although not shown here, a similar relationship is found between district-level contributions and family income.

Figure 2: School Enrollment and School-Level Contributions per Pupil



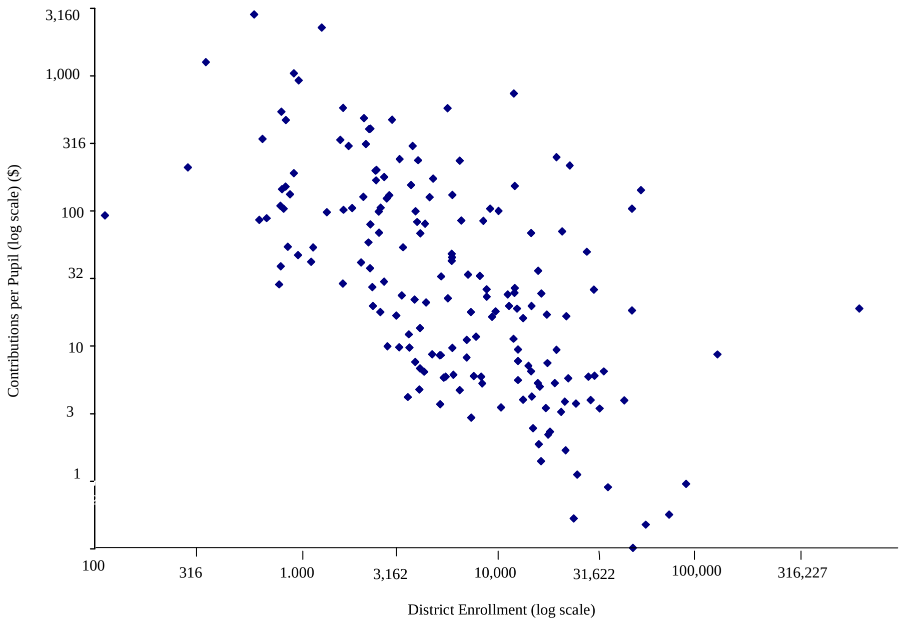
clear difference in the contributions raised by low- and high-income schools. In schools with an average family income of $42,276 or less, only 2.4 percent had a nonprofit that raised over $25,000 in 2001. Among these 26 schools, revenue per pupil averaged just $53. In contrast, in schools with an average family income of $86,321 or more, 50.4 percent had a nonprofit that raised over $25,000. Among these 719 schools, revenue per pupil averaged $136.

The disparity is even greater when looking at schools that raised over $100 per pupil. For each range of family income, the fifth column gives the percentage of schools with a nonprofit organization that raised over $100 per pupil in 2001, and the sixth column gives the average revenue raised by these organizations. Only 0.4 percent of the schools in the lowest-income quintile were able to raise over $100 per pupil, although the average amount raised by those few schools is quite high. In contrast, 23.3 percent of schools with an average family income of $86,321 or more raised over $100 per pupil.[5]

Turning to the relationship between contributions per pupil and school enrollment, Figure 2 shows that contributions per pupil for elementary and middle schools appear to be negatively related to school enrollment, which is again consistent with the findings of Brunner and Sonstelie (2002). However, it is also important to point out that the apparent strong negative relationship between the two

[5] The relationship between average family income and district-level contributions per pupil is similar, with district-level contributions concentrated in districts with the highest family income.

Figure 3: District Enrollment and District-Level Contributions per Pupil



variables may be somewhat misleading due to the censoring of contributions. Because of the IRS filing rules, we do not observe contributions unless gross revenues are above $25,000.   Consequently, among small schools, we only observe contributions if contributions per pupil are quite high. The negative relationship between the censoring point and enrollment is clearly visible in Figure 2: we observe relatively few small schools with contributions and those that we do observe have relatively high contributions per pupil.

Figure 3 illustrates the relationship between district enrollment and district-level contributions per pupil. Similar to the relationship shown in Figure 2, district-level contributions appear to be negatively related to student enrollment. Furthermore, for district-level contributions the censoring of gross revenue at $25,000 is less of a problem. Over 75 percent of all school districts have an enrollment of 1,000 students more. For a school district with 1,000 students, the censoring of gross revenue per pupil occurs at only $25 per pupil. Given that net revenue is on average about 60 percent of gross revenue, this would imply the censoring of net contributions per pupil occurs at only $15.

We began our analysis of the distribution of voluntary contributions in an attempt to answer the question: Which schools have been most successful in raising voluntary contributions? Figures 1, 2, and 3 and Table 3 provide a partial answer to that question: voluntary contributions appear to be concentrated in small and wealthy schools and school districts. That point is reinforced in Table 4, which documents the relationship between school-level contributions and school size in high-income and low-income schools. Columns 2 through 4 provide information on the distribution of contributions per pupil

Table 4

School Level Contributions Per Pupil and School Enrollment:
Elementary and Middle Schools

	High Income Schools ($86,321 or above)			Low Income Schools ($42,276 or less)		
School Enrollment	Number of Schools[a]	With Gross Revenues of $25,000 or more	Average Net Revenue per Pupil	Number of Schools[b]	With Gross Revenues of $25,000 or more	Average Net Revenue per Pupil
Less than 500	573	239	$276	279	6	$98
500 - 799	600	356	126	382	10	119
800 – 999	126	66	82	184	4	36
1,000 or more	126	58	63	247	6	21

[a] 20% of all elementary and middle school students attended one of these high-income schools.
[b] 20% of all elementary and middle school students attended one of these low-income schools.

among high-income schools. Columns 5 through 7 provide the same information for low-income schools. For each of the four ranges of school enrollment in column 1, columns 2 and 5 list the number of schools with student enrollment within that range for high and low income schools respectively. The total number of high-income schools with a nonprofit organization that raised over $25,000 in gross revenue is shown in column 3, while column 4 lists the average revenue per pupil raised by those organizations. Columns 6 and 7 provide the same information for low-income schools.

As Table 4 makes clear, contributions are concentrated in small, high-income schools. Columns 4 and 7 show that average contributions per pupil fall significantly as enrollment increases. For example, in high-income schools, the average contribution per pupil is over four times as large in schools with an enrollment of less than 500 students than in schools with an enrollment of 1000 or more ($276 versus $63). Furthermore, a comparison of columns 3 and 4 and columns 6 and 7 reveals that, for each enrollment range, the fraction of schools with a nonprofit that raised over $25,000, and the average contribution per pupil among those schools, are both substantially higher in high-income schools than in low-income schools.[6]

[6] A similar relationship is also found between district-level contributions and district size in high- and low-income districts.

III. Voluntary Contributions and the Distribution of Resources: What Does a Dollar Buy?

While the previous section presents a fairly clear relationship between contribution levels and school enrollment and income, it is still unclear how large of an impact contributions really have on students directly. Although some schools clearly receive large amounts in contributions while other schools receive very little, the question we ask here is: do schools with more contributions also have more of certain educational inputs, all else equal?

To answer that question, we turn to multivariate analysis. Within a school, the level of a specific resource will depend not only on the revenue available to purchase all inputs, but also on the educational production function and the preferences and objectives of school administrators. For example, one can imagine a school administrator whose objective is to maximize school quality conditional on a fixed level of funding. Note that school quality can be considered a multi-dimensional measure that is influenced by the preferences of the community. It may include student academic performance as measured by test scores, or dropout rates, but in some communities, it may also include having a good music program or lots of individual student attention. Once school quality is defined, the production function relating purchased inputs to school quality is a function of student and school characteristics. For example, some studies have found that class size has a larger effect on the test scores of low-income and minority students than on more affluent and white students (e.g., Krueger and Whitmore, 2001; Rouse, 2000). Finally, the optimal input mix will clearly depend on prices and the district budget.

Thus, the allocation of resources within a school should depend on the preferences of school administrators and parents, the characteristics of students, the revenue available to purchase inputs (i.e. a school's budget), and the prices of school inputs. Accordingly, in this section we regress various measures of school resources on school- and district-level contributions, government revenue, and various school and district characteristics in order to isolate the effect of contributions on school resources. Since the production of elementary, middle and high-school education is likely to be quite different, each level should be analyzed separately. In the interest of brevity, we restrict our discussion to elementary schools, though analysis of middle and high schools revealed patterns that are qualitatively similar.[7] In the first part of our analysis we focus only on those elementary schools in which we observe voluntary contributions, i.e. schools with a nonprofit that raised $25,000 or more in gross revenue in 2001. In the second part of our analysis, we expand the sample by also including those schools that did not report voluntary contributions in 2001. To incorporate those schools, we first predict voluntary contributions at the school level and then use predicted contributions as an explanatory variable in our analysis.

In the analysis that follows, we focus on six resource measures: computers per pupil, aides per pupil, pupil-teacher ratios, average class size, the percent of teachers with a masters degree, and average

[7] Results available from the authors upon request.

teacher experience.[8] In 1996-97, California began implementation of a class-size reduction program to reduce class sizes in grades K-3 down to twenty students. Although the program was voluntary, by 2001, almost all schools had reduced classes in at least grades one and two. Consequently, we focus on average class sizes in grades not affected directly by the program, that is, grades four through six. Data on all six resource measures in 2001-02 come from the California Department of Education's Basic Education Data System.

All the models we estimate use the same set of explanatory variables. We include three variables to control for school revenue sources (i.e. a school's budget). Those variables are school-level contributions per pupil, district-level contributions per pupil, and school district government revenue per pupil. The last variable represents district funding in 2001-02 from all levels of government: federal, state and local. Note that we are implicitly assuming that schools treat contributions and government revenue as if they were equivalent sources of revenue: a dollar of contributions is capable of buying the exact same resources as a dollar of government revenue. In reality, however, contributions are often targeted towards specific programs. For example, according to a recent survey by the California Consortium of Education Foundations, the most common uses of voluntary contributions are mini-grants for teachers, classroom supplies, computers, and arts and music programs. Furthermore, because there is no guarantee that contributions will be stable from year to year, many schools are reluctant to allow donations to be used for purchasing full-time certified teaching positions. Despite differences in what contributions and government revenue are used to purchase, we believe they still represent commensurable sources of revenue. When contributions are used to purchase computers or classroom supplies, it frees up government revenue that can then be used to reduce class size or hire highly qualified teachers. Thus, as long as contributions are a fungible source of revenue, from the perspective of a school administrator, it makes little difference if an additional dollar of funding comes from the government or from private donations.

We include a number of geographic variables to capture differences in the price of school inputs across communities. Numerous studies have found that the costs of school inputs differ in urban and rural areas. Consequently we include a dummy variable that takes the value of unity if a school is located in an urban area and a dummy variable that takes the value of unity is a school is located in a rural area, with the omitted group being schools located in suburban areas. We also attempt to control for differences in the cost of hiring and attracting teachers by including a set of 10 regional indicator variables.[9] Rueben and Herr (2001) find that regional differences are an important factor in explaining

[8] We also did the same analysis for the percent of teachers that are fully credentialed and the results are qualitatively similar as other teacher characteristics.

[9] The 10 geographical regions are: Northern California, Sacramento Area, San Francisco Bay Area, North Central Valley, South Central Valley, Central Coast, South Coast, Los Angeles County, Orange County, San Bernardino and

disparities in teacher salaries. An alternative approach would be to include teacher salaries directly; however, observed salaries are, in part, a choice variable of the district and hence endogenous. Using the regional indicators allows us to avoid this complication while still capturing much of the variation in salary costs.

We include four other variables in our analysis. The first is school enrollment, to control for economies of scale in the production of school quality. Similarly, we also include district enrollment to control for economies of scale at the district level. The third variable is the fraction of student in the federal free or reduced price lunch program. Betts and Rueben (forthcoming) find that schools with a high percentage of disadvantaged youth tend to allocate resources differently than schools with a low fraction of disadvantaged youth. For example, they find that schools with a larger share of students receiving free or reduced price lunch tend to have smaller class sizes, all else equal. This is consistent with the literature mentioned earlier about differences in the productivity of inputs for students of different socioeconomic backgrounds. The final variable is a dummy variable that takes the value of unity if a school is located in an elementary district and zero otherwise. We include this variable to control for any differences across district type in the allocation of school resources. Data on school and district enrollment and the fraction of students receiving free or reduced price lunch in 2001-02 were obtained from the California Department of Education.

Finally, there are two specification issues that deserve discussion. The first concerns schools located in single-school districts. As noted previously, we include contributions made to schools located in single-school districts in the school-level contribution figures. As a result, data on district-level contributions for these schools is missing. To overcome that problem, we created a dummy variable that takes the value of unity for schools located in single-school districts. We then included both this dummy variable and district-level contributions per pupil (with missing values recoded to zeros) in our regressions.

The second issue concerns schools in the same school district. Undoubtedly there are some factors common to all schools in a district that may influence resource allocations that we cannot observe. As a consequence, the error terms in our regressions are likely to be correlated among schools in the same district. Moulton (1986) has shown that this group-wise dependence can bias standard error estimates. To overcome that problem, we allow for district-specific random effects in our estimation procedure.

Riverside Counties. The final region, which forms the omitted group in our analysis, consists of San Diego and Imperial Counties. See Rueben and Herr (2001) for a list of the counties that comprise each region.

Table 5

Summary Statistics, by Quintiles of School-Level Contributions

Variable	No Contributions	1st Quintile ($33 or less)	2nd Quintile ($33 - $53)	3rd Quintile ($54 - $80)	4th Quintile ($81 - $146)	5th Quintile ($147 or more)
Contributions						
School Contributions	---	22.62	43.53	66.15	106.59	402.55
		(8.16)	*(5.62)*	*(7.64)*	*(18.64)*	*(682.90)*
District Contributions	17.95	11.02	17.36	17.51	24.87	85.98
	(95.80)	*(51.84)*	*(60.88)*	*(51.98)*	*(83.82)*	*(14.31)*
Resources						
Computers per Pupil	17.83	13.18	15.22	16.80	17.37	21.19
	(15.14)	*(5.89)*	*(7.19)*	*(7.09)*	*(7.66)*	*(8.05)*
Aides per Pupil	1.84	1.39	1.47	1.58	1.80	2.38
	(2.05)	*(1.03)*	*(1.12)*	*(1.29)*	*(1.28)*	*(1.88)*
Pupil Teacher Ratio	19.35	20.53	20.27	20.39	20.31	19.40
	(2.74)	*(2.05)*	*(1.85)*	*(2.02)*	*(1.87)*	*(2.59)*
Average Class Size	27.53	29.62	29.34	29.51	28.81	27.42
	(4.40)	*(2.42)*	*(2.34)*	*(2.42)*	*(3.59)*	*(3.71)*
% Teachers with MA	28.48	33.89	32.25	35.15	36.93	37.05
	(15.47)	*(14.73)*	*(13.79)*	*(13.64)*	*(14.58)*	*(14.52)*
Average Teacher	12.24	12.34	12.84	13.45	13.44	13.26
Experience	*(3.80)*	*(2.95)*	*(3.11)*	*(3.44)*	*(3.30)*	*(3.57)*
Other Variables						
Government Funding	7,921	7,357	7,292	7,290	7,339	8,125
	(1,719)	*(1,316)*	*(1,336)*	*(700)*	*(770)*	*(1,701)*
Fraction Free Lunch	0.60	0.46	0.31	0.25	0.18	0.11
	(0.29)	*(0.25)*	*(0.21)*	*(0.20)*	*(0.16)*	*(0.14)*
School Enrollment	577	765	657	598	563	475
	(307)	*(230)*	*(209)*	*(178)*	*(161)*	*(173)*
District Enrollment	80,863	56,906	40,916	40,512	40,652	54,810
	(187,544)	*(144,843)*	*(118,643)*	*(111,790)*	*(113,133)*	*(155,281)*
Urban	0.35	0.28	0.25	0.24	0.26	0.26
	(0.48)	*(0.45)*	*(0.43)*	*(0.43)*	*(0.44)*	*(0.44)*
Rural	0.15	0.03	0.06	0.06	0.04	0.05
	(0.36)	*(0.16)*	*(0.23)*	*(0.23)*	*(0.19)*	*(0.21)*
Elementary District	0.35	0.33	0.30	0.25	0.34	0.37
	(0.48)	*(0.47)*	*(0.46)*	*(0.43)*	*(0.48)*	*(0.48)*
Observations	4,117	254	254	254	254	254

Our data are summarized in Table 5. Note that both computers per pupil and aides per pupil are measured per hundred students. The second column presents summary statistics for schools in which contributions are not observed. Columns 3 through 7 present summary statistics for schools with contributions separated by quintiles of school-level contributions. For example, the third column reports summary statistics for the 254 elementary schools with contributions per pupil of less than $33. Similarly, the seventh column reports summary statistics for the 254 schools with contributions per pupil of $147 or more.

Table 5 shows a fairly clear pattern of resources: among schools that receive at least $25,000 in gross contributions, resources are positively correlated with contributions per pupil. Schools with more contributions have more computers and more aides per pupil, smaller classes, lower pupil-teacher ratios, more experienced teachers and more teachers with a Master's degree. For some inputs, such as class size and pupil-teacher ratio, the differences appear relatively modest; for example, schools with the most contributions have classes that are one or two students (roughly 7 percent) smaller than schools with the least contributions. The relationship is stronger for computers and aides; schools in the top quintile have 8 more computers (61 percent), and one more aide (71 percent) per hundred students than schools in the bottom quintile.

Furthermore, note that schools *without* measurable contributions have, on average, resources that are similar to schools in the fourth or fifth quintile of schools *with* contributions, with the exception of teacher education and experience. This is partly explained by censoring: some smaller schools have contributions per pupil that are large but because their enrollment is very small, total contributions do not exceed $25,000. In addition, the schools with higher contributions tend to be smaller than those in the lower quintiles and smaller schools tend to have smaller classes and more fixed resources per pupil overall. We will address both these issues by predicting contributions for schools without contributions data and using multivariate analysis to isolate the relationship between contributions and resources more specifically.

Table 5 also underscores that schools with high contributions at the school level tend to have more revenue from other sources as well. They tend to be located in districts with higher contributions at the district level, and that also have more government funding. These higher levels of government funding are due primarily to having more local revenue. Although school finance reform in California has essentially eliminated variation across districts in local property tax revenue per pupil, other types of local revenue sources still vary widely. According to Sonstelie et al. (2000) the largest categories of other local revenue include leases and rentals, miscellaneous sales and fees, interest income, and parcel taxes. The last category, parcel taxes, is particularly interesting. Similar to voluntary contributions, parcel taxes emerged as a source of school revenue in the aftermath of school finance reform. Specifically, while

Proposition 13 restricted school districts from raising property taxes, it also gave school districts the authority to levy parcel taxes (a tax on real estate parcels, not on the value of those parcels) subject to the approval of two-thirds of a district's voters. The first parcel tax for schools was enacted in 1983 and since that time, the parcel tax has become the largest source of discretionary tax revenue available to school districts. Not surprisingly, high-income school districts have been the most successful in passing parcel taxes. Finally, as might be expected from the discussion in section II, contributions are inversely related to the percent of students in the free and reduced price lunch program.

Table 6 reports results from the resource regressions using the sample of schools with a nonprofit that raised $25,000 or more in gross revenue in 2001.[10] The results provide only modest evidence that contributions have any impact on school resources. The only resources that have the expected sign and a statistically significant relationship (at the five-percent level) with school-level contributions are computers per pupil and the pupil-teacher ratio, and those coefficients are relatively small. A $100 increase in school contributions per pupil is associated with only 0.2 more computers per hundred students and 0.04 fewer students per teacher. Average teacher experience is also statistically significant but the coefficient is negative. A possible explanation for this is that schools with more contributions are buying lower pupil-teacher ratios by hiring new teachers with relatively little experience.

District-level contributions have a slightly larger effect on resources with a $100 increase in district contributions per pupil associated with one more computer per hundred students and 0.28 fewer students per teacher. District contributions also increase the number of aides per pupil, though school contributions appear to be negatively correlated with aides. It is also interesting to note that among schools with more than $25,000 in gross contributions, we find no relationship between teacher education and the amount of contributions raised.

Table 6 also reveals a negative relationship between school resources and school size: larger schools have fewer computers, fewer aides, bigger classes, fewer teachers with an MA and less experienced teachers. Schools with higher proportions of students in the free and reduced price lunch program also have many fewer teachers with an MA and less experienced teachers but these schools have *more* aides per pupil, lower pupil-teacher ratios and smaller classes. We will return to the issue of resources for students of different socioeconomic status in section IV.

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[10] The number of observations for each regression varies slightly due to missing data for the dependent resource variables. In particular, because we use the average class size in grades other than K-3, schools that serve only K-3 are dropped in that model.

Table 6

School Resources and Contributions per Pupil
Coefficient
(Standard Error)

	Computers per Pupil	Aides per Pupil	Pupil Teacher Ratio	Average Class Size	% Teachers MA	Average Experience
Contributions						
School Contributions [a]	0.195**	-0.018*	-0.043**	-0.013	0.079	-0.089**
	(0.058)	*(0.010)*	*(0.014)*	*(0.020)*	*(0.092)*	*(0.026)*
District Contributions [a]	0.915**	0.200**	-0.276**	-0.264*	0.926	-0.156
	(0.294)	*(0.065)*	*(0.093)*	*(0.154)*	*(0.511)*	*(0.134)*
Other Variables						
Government Revenue [a]	0.071**	0.006	-0.034**	-0.055**	0.068	-0.002
	(0.023)	*(0.005)*	*(0.007)*	*(0.011)*	*(0.039)*	*(0.010)*
Fraction Free Lunch	-1.645	0.507**	-2.279**	-1.806**	-6.051**	-2.940**
	(1.005)	*(0.170)*	*(0.252)*	*(0.365)*	*(1.607)*	*(0.446)*
School Enrollment [a]	-0.761**	-0.152**	0.287**	0.289**	-0.361*	-0.243**
	(0.106)	*(0.018)*	*(0.026)*	*(0.037)*	*(0.168)*	*(0.047)*
District Enrollment [b]	0.010	-0.005	-0.003	0.043	-0.184	-0.001
	(0.063)	*(0.018)*	*(0.025)*	*(0.038)*	*(0.121)*	*(0.030)*
Urban	-0.204	-0.027	0.179	0.287	1.071	0.614**
	(0.665)	*(0.124)*	*(0.182)*	*(0.266)*	*(1.106)*	*(0.300)*
Rural	2.346**	0.013	0.090	-0.900**	-1.112	-0.289
	(1.011)	*(0.179)*	*(0.264)*	*(0.389)*	*(1.636)*	*(0.451)*
Elementary District	0.902	0.246	0.109	-1.145**	-1.725	-0.662**
	(0.677)	*(0.162)*	*(0.229)*	*(0.352)*	*(1.215)*	*(0.314)*
One School District	3.954*	2.037**	-1.095*	-0.985	4.329	2.656**
	(2.120)	*(0.437)*	*(0.626)*	*(0.937)*	*(3.569)*	*(0.958)*
Constant	16.815**	1.915**	21.057**	30.073**	43.595**	16.792**
	(2.244)	*(0.501)*	*(0.713)*	*(1.091)*	*(3.910)*	*(1.028)*
Observations	1,259	1,259	1,259	1,240	1,259	1,259
R-square	0.22	0.15	0.26	0.27	0.29	0.10

Notes: (1) All regressions include regional fixed effects, (2) [a] indicates variable is measured in 100's, (3) [b] indicates variable is measured in 10,000's, (4) ** Significant at the 5% level, (5) * Significant at the 10% level.

The results reported in Table 6 are based on a sample that excluded schools that did not report voluntary contributions in 2001. It seems likely that many of these excluded schools raised some positive level of contributions but we could not observe those contributions because they did not raise more than $25,000 in gross revenue. For very large schools this is probably of little concern: given the censoring point, contributions per pupil are likely to be quite small in those schools. On the other hand, contributions per pupil are likely to be quite high in many of the smaller schools that did not report contributions in 2001. To incorporate all schools into our analysis we first predict school-level contributions per pupil and then re-estimate our models using predicted rather than actual contributions per pupil.[11]

To predict contributions we follow the methodology used by Brunner and Sonstelie (2002). Specifically, we regress school-level contributions on the log of family income, the log of school enrollment and a set of school-level and district level characteristics. Because the censoring of contributions at $25,000 applies to gross contributions, rather than net contributions, we use gross contributions as our dependent variable. Furthermore, note that the dependent variable is contributions, not contributions per pupil, so the censoring point does not vary with enrollment. To estimate our regressions, we use Tobit analysis, which accounts for the censoring at $25,000.

Table A1 in the appendix describes the explanatory variables we use to predict contributions and Table A2 presents coefficient estimates for the Tobit model. The coefficient estimates reported in Table A2 are similar to those obtained by Brunner and Sonstelie (2002). For example, our results indicate that contributions are positively related to family income and educational attainment. Furthermore, our estimate of the elasticity of total contributions with respect to enrollment is 0.69 and is significantly less than unity. This implies contributions rise less than proportionally with enrollment or that contributions per pupil decline with enrollment, a finding that is consistent with the results presented in Section II.

Resource regression results using predicted contributions are reported in Table 7. Note that the sample is now *all* elementary schools. Relative to the results reported in Table 6, the regressions with predicted contributions suggest that school contributions have a larger impact on resources. For the first four resources listed in Table 7, the coefficient on school contributions is statistically significant and of the expected sign. Furthermore, the magnitudes of the school contribution coefficient estimates reported in Table 7 are, in many cases, much larger than those reported in Table 6. For example, our results indicate that, all else equal, a $100 increase in school contributions would increase computers by approximately 2.7 more computers per 100 students. Similarly, a $100 increase in school contributions would reduce the average class size by approximately half a student. We once more find a negative relationship between contributions and teacher experience and no statistically significant relationship between contributions and teacher education.

[11] As we noted previously, given the size of most school districts, the censoring of contributions is likely of little concern at the district level. Consequently, we continue to utilize actual district level contributions in our analysis.

Table 7

School Resources and Predicted Contributions per Pupil
Coefficient
(Standard Error)

	Computers per Pupil	Aides per Pupil	Pupil Teacher Ratio	Average Class Size	% Teachers MA	Average Experience
Contributions						
School Contributions [a]	2.710**	0.201**	-0.273**	-0.482**	-0.239	-0.284**
	(0.284)	*(0.037)*	*(0.050)*	*(0.076)*	*(0.266)*	*(0.080)*
District Contributions [a]	-0.440	0.013	-0.050	-0.128	0.529*	-0.003
	(0.380)	*(0.060)*	*(0.053)*	*(0.103)*	*(0.295)*	*(0.082)*
Other Variables						
Government Revenue [a]	0.229**	0.013**	-0.044**	-0.067**	0.060**	-0.006
	(0.020)	*(0.003)*	*(0.003)*	*(0.005)*	*(0.016)*	*(0.004)*
Fraction Free Lunch	7.096**	1.324**	-2.555**	-2.758**	-7.160**	-4.348**
	(0.910)	*(0.119)*	*(0.163)*	*(0.247)*	*(0.863)*	*(0.261)*
School Enrollment [a]	-0.744**	-0.073**	0.247**	0.400**	-0.381**	-0.111**
	(0.068)	*(0.009)*	*(0.013)*	*(0.019)*	*(0.066)*	*(0.020)*
District Enrollment [b]	0.031	-0.017	-0.011	0.039	-0.139	-0.001
	(0.208)	*(0.034)*	*(0.025)*	*(0.042)*	*(0.145)*	*(0.034)*
Urban	-1.115*	-0.147*	0.081	0.227	1.196**	-0.188
	(0.597)	*(0.078)*	*(0.106)*	*(0.161)*	*(0.564)*	*(0.169)*
Rural	2.535**	0.173*	-0.062	-0.687**	-2.648**	-0.528**
	(0.700)	*(0.093)*	*(0.122)*	*(0.188)*	*(0.649)*	*(0.192)*
Elementary District	3.167**	0.235	0.133	-0.581**	-1.033	-0.354
	(1.221)	*(0.197)*	*(0.158)*	*(0.265)*	*(0.900)*	*(0.227)*
One School District	3.456**	0.082	-0.113	-1.283**	0.712	2.465**
	(1.522)	*(0.238)*	*(0.216)*	*(0.347)*	*(1.198)*	*(1.039)*
Constant	-2.040	0.477	23.398**	31.402**	41.716**	16.726**
	(2.919)	*(0.460)*	*(0.399)*	*(0.651)*	*(2.241)*	*(0.617)*
Observations	5,309	5,309	5,306	5,154	5,309	5,309
R-square	0.16	0.07	0.27	0.31	0.30	0.10

Notes: (1) All regressions include regional fixed effects, (2) [a] indicates variable is measured in 100's, (3) [b] indicates variable is measured in 10,000's, (4) ** Significant at the 5% level, (5) * Significant at the 10% level.

We also examined how the distribution of resources *within* a district are related to school-level contributions by estimating a model that included district-specific fixed effects. The fixed effects model is a within-group estimator and thus estimates the relationship between contributions and school resources using only within-district variation in the amount of contributions that schools receive. Consequently, any district-specific factor that affects resources, such as government funding, district-level contributions, or an unobservable district-specific factor, is eliminated from the model. The results of our fixed effects analysis are reported in Table 7A of the appendix. The results reported there are quantitatively and qualitatively similar to those reported in Table 7. For example, the coefficients on the predicted school contributions variable reported in Table 7A are very similar to those reported in Table 7. Thus, our results suggest that contributions not only affect the distribution of resources across schools in different districts but also the distribution of resources among schools within the same district.

IV. Voluntary Contributions and the Distribution of School Resources: The Issue of Equity

In section II we saw that schools with the highest contributions per pupil tend to be smaller and located in wealthy communities. Furthermore, the results reported in Table 7 suggest that, all else equal, schools with the highest contributions per pupil have significantly more computers per pupil, more aides per pupil, lower pupil-teacher ratios and lower class sizes. At the same time, Table 7 suggests that, all else equal, schools with a higher fraction of disadvantaged youth also tend to have more of these resources. Consequently, if one defines equity in terms of the resources available to students with high and low socioeconomic status, then it remains unclear whether or not voluntary contributions have led to a less equitable distribution of school resources.

To examine how contributions have affected the overall distribution of resources across schools, we used the results reported in Table 7 to predict school resources. We then analyzed how the distributions of predicted school resources varied with the amount of voluntary contributions that schools receive. The results of that exercise are presented in Table 8. The first column of Table 8 gives five ranges of predicted school contributions per pupil. For each range, column 2 shows the number of elementary schools with predicted contributions in that range and columns 3 though 8 list the predicted resource levels among those schools. Note that the predicted resource levels reveal how resource allocations vary across schools with different levels of contributions *allowing* for the fact that the students that attend those schools differ. That is, these predicted resources levels take into account the fact that schools receiving few contributions also tend to have a greater fraction of low-income students.

Table 8 shows that for computers, aides, pupil-teacher ratio and class size, there is relatively little variation in resources across the majority of schools. However, schools that raise exceptionally large levels of contributions, i.e., more than $500 per pupil, have markedly more resources. Recall from Table 5 that the schools in this group also tend to have the fewest low-income students, so contributions do appear to be affecting equity across socioeconomic status. But note that there are only 69 schools that raise such high levels of contributions. These schools are also particularly small and represent less than 1% of all elementary school students in California. Thus, the vast majority of students attend schools in which contributions appear to have almost no effect on the distribution of these inputs.

Table 8

Predicted Contributions and Predicted Resources

Contributions	Number of Schools	Computers per Pupil	Aides per Pupil	Pupil Teacher Ratio	Average Class Size	% Teachers with MA	Average Experience
$50 or Less	3,333	17.66	1.96	19.22	27.59	27.87	11.70
$50 - $99	822	16.13	1.67	19.85	27.97	31.15	13.40
$100 - $249	827	16.18	1.60	20.17	28.34	34.05	13.84
$250 - $499	258	20.79	1.98	19.64	27.30	35.24	13.82
$500 or more	69	31.25	2.93	17.74	24.21	35.27	13.00

This does not imply that contributions are not buying more inputs. The regressions shown in Tables 6 and 7 indicate that, all else equal, more contribution dollars translate into more of these resources. But it does not necessarily follow that these resources are distributed inequitably across all schools. It appears that many schools raising contributions are compensating for the fact that, all else equal, they would otherwise have fewer computers and aides, more pupils per teacher and larger class sizes.

The pattern for teacher education and experience is slightly different. With regard to these inputs, schools with the highest contributions look fairly similar to schools that raise less. However, it is schools in the bottom group that now appear to be different, with notably lower average teacher experience and fewer teachers with Master's degrees. This may perhaps be explained more by teacher preferences than voluntary contributions. Remember that Tables 6 and 7 do not give any evidence that contributions are being used to enhance teacher characteristics, all else equal, but they do reveal a strong relationship between teacher characteristics and student socioeconomic status. It seems likely that schools with more contributions have more educated and experienced teachers, not necessarily because contributions are specifically being used to buy these characteristics, but rather because contributions are correlated with factors that make these schools more attractive places to teach. Thus, teachers with Master's degrees or more experience are more apt to choose to work in these schools.

Finally, the results reported in Table 8 do not account for private contributions gathered at the district level. In many districts, private funds are raised at both the school and district levels, and funds raised by the district are then re-distributed to individual schools. Thus, there may be schools that receive significant contributions from the district that are not accounted for in Table 8. In Table 8A of the appendix, we include district-level contributions, assuming that district contributions are distributed equally on a per-pupil basis. That is, we defined contributions as the sum of predicted school-level contributions per pupil and district level contributions per pupil. The patterns are very similar to those found in Table 8.

V. Conclusion

The rise in voluntary contributions to public schools over the last few decades, and particularly the surge in contributions during recent months in response to budget cuts, has helped many schools and districts to purchase and maintain programs that would not have been otherwise possible. In California, where the school finance system does not allow local communities much flexibility in educational spending, fundraising is one of the few instruments available to parents trying to obtain a higher quality of education for their children. But when some communities are able to raise significant amounts and others are not, concerns naturally arise about the equitable distribution of funds and the resources they buy. In this paper, we set out to ascertain whether such concerns are warranted by examining the size and distribution of contributions and resources for all elementary schools in California.

We find that contributions are concentrated in small and wealthy schools and school districts and that these contributions are used to buy more computers, more teachers' aides and smaller classes. However, this does not automatically mean that there is an inequitable distribution of these resources across schools. For all but a few schools and students, these inputs are allocated fairly evenly. On the other hand, we also find that a large number of schools raising little or no contributions have less educated and experienced teachers than schools raising more contributions. However, since we do not find any evidence that, all else equal, schools are using contribution dollars to buy better teacher characteristics, we believe that inequities in the distribution of teachers are due more to teacher preferences than contributions directly.

Thus, for most communities concerned about the equitable distribution of school resources, policies to restrict or re-distribute voluntary contributions may be unnecessary. While it is true that a small number of schools raise extraordinarily large amounts, and it is likely that such schools will continue to receive much media attention, contributions do not appear to be causing inequities in resources such as technology and class size for the vast majority of students. In addition, to the extent that contributions are a proxy for other factors, but not a direct cause of the inequity in teacher characteristics across schools, then policies to restrict or re-distribute contributions are also unlikely to have much effect on the distribution of teachers.

At the same time, it is important to keep in mind that the equitable distribution of resources is not necessarily equivalent to the equitable distribution of student performance or school quality. In this paper we have focused on the distribution of school inputs (i.e., contributions and specific resources) but certainly an alternative way to think about equity is in terms of outcomes. Our results here are still consistent with the belief that even if contributions are not correlated with the allocation of resources, they may nevertheless matter for performance. For example, work by Duncombe and Yinger (1998) and Imazeki and Reschovsky (forthcoming) emphasizes that to achieve a given level of performance, low-income students need *more* school resources than their more affluent peers. This may be one reason why we find that, all else equal, schools with more low-income students have smaller classes. If contributions in wealthier areas are then used to even out the distribution of inputs, it could actually worsen the distribution of performance.

Contributions may also affect student performance, not because of the resources that they buy directly, but because they represent the involvement of the local community. Husted and Kenny (2000) and Fischel (2001) argue that greater local control, represented by more local funding, leads to greater efficiency and higher student outcomes. With more local revenue presumably comes more local oversight and school officials are held more accountable. This is likely to be particularly true for voluntary contributions since they are often raised for a specific objective, requiring school officials to use the funds in the manner most consistent with the preferences of the community. Thus, although we find here that voluntary contributions to public schools are not disrupting the equitable distribution of school inputs, the question of how contributions affect student performance remains for future work.

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Appendix

Table A1

Description of Variables Used to Predict Contributions

Variable	Description	Measurement	Source
Family Income	2000 average family income in school's Census tract	Log	2000 Census
Enrollment	School enrollment in 2001-02	Log	CA Department of Education
Fraction College Educated	Fraction of population 25 years of age or older with a college degree or higher in school's census tract	Fraction	2000 Census
Fraction White	Fraction of students that are White	Fraction	CA Department of Education
Fraction Free Lunch	Fraction of students receiving free or reduced price lunch	Fraction	CA Department of Education
Children per Family	Total school age children in census tract divided by total families	Ratio	2000 Census
Urban	Dummy variable equal to unity if school is located in an urban area	0/1	CA Department of Education
Rural	Dummy variable equal to unity if school is located in a rural area	0/1	CA Department of Education
Elementary District	Dummy variable equal to unity if school is located in an elementary school district	0/1	CA Department of Education
Government Revenue Per Pupil	Total government revenue per pupil in 2001-02	Log	CA Department of Education
District Enrollment	District enrollment in 2001-02	Log	CA Department of Education
Number of Schools	Total number of schools in the school district	Log	CA Department of Education

Table A2

Coefficient Estimates School Level Contributions, Elementary Schools

Variable	Coefficient (Standard Error)
Family Income	0.46**
	(0.12)
Enrollment	0.69**
	(0.07)
Fraction College Educated	1.19**
	(0.29)
Fraction White	0.71**
	(0.14)
Fraction Free Lunch	-2.23**
	(0.16)
Children per Family	-0.46**
	(0.12)
Urban	- 0.29**
	(0.06)
Rural	- 0.57**
	(0.11)
Elementary District	0.04
	(0.06)
Government Revenue Per Pupil	0.92**
	(0.24)
District Enrollment	0.04
	(0.06)
Number of Schools	-0.83**
	(0.13)
Constant	-12.06**
	(2.75)
Pseudo R-squared	0.26
Observations	5,309

Notes: (1) ** Statistically significant at the 5 percent level.

Table 7A

School Resources and Predicted Contributions, Fixed Effects Regressions
Coefficient
(Standard Error)

	Computers per Pupil	Aides per Pupil	Pupil Teacher Ratio	Average Class Size	% Teachers MA	Average Experience
School Contributions	3.058**	0.215**	-0.285**	-0.699**	-0.891**	-0.326**
	(0.308)	*(0.040)*	*(0.058)*	*(0.086)*	*(0.302)*	*(0.093)*
Other Variables						
Fraction Free Lunch	8.124**	1.437**	-2.936**	-3.547**	-8.283**	-4.923**
	(0.969)	*(0.124)*	*(0.182)*	*(0.269)*	*(0.949)*	*(0.294)*
School Enrollment	-0.667**	-0.069**	0.244**	0.360**	-0.415**	-0.121**
	(0.070)	*(0.009)*	*(0.013)*	*(0.020)*	*(0.069)*	*(0.021)*
Urban	-0.923	-0.131	0.078	0.093	0.843	-0.281
	(0.631)	*(0.081)*	*(0.118)*	*(0.175)*	*(0.618)*	*(0.191)*
Rural	3.122**	0.081	-0.110	-0.573**	-2.022**	-0.733**
	(0.786)	*(0.101)*	*(0.147)*	*(0.221)*	*(0.770)*	*(0.239)*
Constant	15.001**	1.354**	19.844**	28.111**	37.406**	16.125**
	(0.885)	*(0.114)*	*(0.166)*	*(0.246)*	*(0.867)*	*(0.268)*
Observations	5,074	5,074	5,071	4,920	5,074	5,074
R-squared	0.05	0.04	0.12	0.11	0.03	0.07

Notes: (1) [a] indicates variable is measured in 100's, (2) ** Significant at the 5% level, (3) * Significant at the 10% level.

Table 8A

Predicted Contributions and Predicted Resources, School and District Contributions

Contributions	Number of Schools	Computers per Pupil	Aides per Pupil	Pupil Teacher Ratio	Average Class Size	% Teachers with MA	Average Experience
$50 or Less	3,054	17.75	1.95	19.29	27.64	27.73	11.68
$50 - $99	843	16.32	1.70	19.80	27.98	30.79	13.23
$100 - $249	972	16.22	1.71	19.76	27.99	32.69	13.51
$250 - $499	305	18.98	1.85	19.80	27.73	35.55	13.75
$500 or more	135	25.70	2.54	18.58	25.42	36.34	13.11