Vouchers in New York, Dayton, and D.C.

by WILLIAM G. HOWELL, PATRICK J. WOLF, PAUL E. PETERSON, & DAVID E. CAMPBELL

Just ten years ago, the only data available on the impact of school vouchers came from a poorly designed public-choice program conducted during the 1960s in Alam Rock, California. But the early and mid-1990s brought new privately and publicly funded voucher programs to cities such as Milwaukee, Dayton, Cleveland, Indianapolis, San Antonio, Washington, D.C., and New York City. With them came a wealth of new research opportunities.

The privately funded voucher programs in New York City, Dayton, and the District of Columbia are especially conducive to study. In each city, vouchers were awarded randomly, generating treatment and control groups that are statistically indistinguishable from one another. Before conducting the lotteries, our evaluation team collected data on student test scores and family background characteristics. One and two years later, we retested the students. Since the two groups of students—the lottery’s winners and losers—had similar average abilities and family backgrounds, any subsequent achievement differences observed between them can be attributed to the effects of the vouchers.

As a result, our evaluations of the New York, Dayton, and D.C. voucher programs have yielded the best available information on students’ test-score outcomes and parental assessments of public and private schools. Here we use the data from all three cities to analyze the one- and two-year effects on academic performance of switching from a public to a private school. We find that vouchers have a moderately large, positive effect on the achievement of African-American students, but no discernible effect on the performance of students of other ethnicities.

The Literature

Earlier comparisons of public and private schools generally have found that low-income and African-American students who attend private schools outperform their public-school peers. For instance, University of Wisconsin economist Derek Neal’s analysis of the National Longitudinal Survey of Youth found that, even after adjusting for family background characteristics, students from Catholic schools were 10 percentage points more likely to go to college than were public-school students. The gap between Catholic-school students and public-school students was largest among urban minority children. Other studies have reached similar findings.

University of Wisconsin political scientist John Witte’s review of the literature on school choice effects led him to conclude that studies of private schools “indicate a substantial private-school advantage in terms of completing high school and enrolling in college, both very important events in predicting future income and well-being.”

All of these studies, however, have one important limitation. They can account for only observed family background characteristics, such as the mother’s educational level, a student’s ethnicity, or family income. There is no assurance that these studies have successfully controlled for an intangible factor: the willingness of parents to pay tuition to send their children to private schools and all that this implies about the value they place on education. As a result, it remains unclear whether these studies have unearthed actual differences between public and private schools or simply differences in the kinds of students and families attending them.

The best way to compensate for this limitation is to assign students randomly to experimental and control groups whose only substantive difference is whether they are offered a voucher. Past evaluations of voucher programs have not been able to take full advantage of a random-assignment research design. Consequently, the findings from New York, Dayton, and D.C. provide a unique opportunity to examine the effects of school vouchers.

The Programs

In several key respects, the three voucher programs followed similar designs. All were privately funded; all were targeted at students from low-income families, most of whom lived in the inner city; all provided only partial vouchers, expecting the families to supplement them; and all of the students in the evaluations previously had been attending public schools.

New York City. The School Choice Scholarships Foundation (SCSF) in New York City offered 1,300 scholarships worth up to $1,400 annually toward tuition at a private school for at least three years. To qualify for a scholarship, children had to be entering grades 1 through 4, live in New York City, attend a public school at the time of application, and come from families with incomes low enough to qualify for the U.S. government’s free or reduced-price school-lunch program. More than 20,000 students applied between February and late April 1997. By the end of the scholarship program’s second year, 64 percent of the lottery-winning students were attending a private school.

Dayton, Ohio. In the spring of 1998, Parents Advancing Choice in Education (PACE) offered low-income students in grades K–12 the opportunity to win a scholarship to attend private school. For the 1998–99 school year, PACE offered scholarships to 515 students who were in public schools and to 250 who were already enrolled in private schools in the Dayton metropolitan area. During the program’s first year, the PACE scholarships covered 50 percent of tuition at a private school, up to $1,200. Support was guaranteed for at least four years, with a possibility of continuing through high school, provided funds remained available. Of those students offered scholarships, 49 percent enrolled in a private school during the second year of the program.

Washington, D.C. Established in 1993, the Washington Scholarship Fund (WSF) is the oldest of the three programs. By the fall of 1997, the WSF was serving approximately 460 children at 72 private schools. On receiving a large infusion of new funds...
The Voucher Gap (Figure 1)

After two years, African-American students who used vouchers to switch from public to private schools scored 3.3 percent points higher in math and reading than those who remained in public schools. This represents a difference of 0.33 standard deviations—or roughly one third of the Black-white test score gap nationally.

- African-Americans
- Other ethnic groups

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Research

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In New York, response rates were similar for both the treatment and the control groups after one and two years in all three cities. Second, comparisons of baseline text scores and background characteristics revealed only minor differences between the composition of the test and control groups in all three cities. Finally, to account for the minor differences between respondents and nonrespondents that we did observe, the test scores of children who, based on their demographic characteristics, were more likely to attend follow-up sessions were weighted less heavily, while the test scores of children who were less likely to attend follow-up sessions, but nevertheless did, were weighted more heavily. Given the slight differences between respondents and nonrespondents, however, the weights had little effect on the results.

The randomized lottery ensured that lottery winners as a group were not significantly different from the control group (those who did not win a scholarship). In all three cities, the demographic characteristics and pre-lottery test scores of scholarship winners and losers (the treatment and control groups, respectively) resembled one another. Only in Dayton were there minor differences in the pre-lottery test scores: those who won a voucher scored 6.2 percent points lower in math and 3.7 point lower in reading than those not offered a scholarship, a statistically significant difference.

To measure the effect on children's test scores of switching to a private school, we estimate a statistical model that takes into account whether a child attended a public or a private school, as well as baseline reading and math test scores. Baseline test scores were included to adjust for the minor baseline differences between the treatment and control groups on the achievement tests and to increase the precision of the estimated impacts.

The lottery generated two groups: those who were offered a voucher and those who were not. We are interested, however, in the effect of being offered a voucher. Rather, we are interested in the effect of using a voucher to attend a private school. A significant number of the students who were offered vouchers did not use them; similarly, a smaller proportion of those students not offered a voucher attended a private school. Therefore, a simple comparison between public and private school students is inappropriate because certain students may be more likely to take advantage of a voucher. Their parents may place greater value on education and be more willing to supplement the voucher, or they may live in a neighborhood with a broader selection of private schools. If these children differ from students who won a voucher but failed to use it in ways that are related to student achievement, it could bias our findings. To solve this problem, we used an instrumental variable whether or not a student was offered a voucher to predict the probability that she attended a private school; with these predicted values, we can provide an unbiased estimate of the actual impact of switching from a public- to a private-school. This two-stage regression technique was first used in medical research and is now commonplace in econometric studies.

Results

Our findings varied by ethnic group. In all three cities, there were no significant differences between the test score performance of non-African-American students who switched from a public to a private school and the performance of students in the control group—after either one or two years. For African-American students, however, the receipt of a voucher made a substantial difference. In the three cities combined, African-American students who switched from public to private schools scored, after one year, 3.3 percent points higher on the combined math and reading tests (expressed as National Percentile Ranking [NPR] points, which range from 0 to 100 with a national median of 50). After two years, African-American students who used a voucher to enroll in a private school scored 6.3 percent points higher than African-American students who remained in public schools (the control group) (see Figure 1).
African-Americans. African-American students who switched from public to private schools performed 3.3 percentile points higher on the combined test in year one and 6.6 percentile points higher in year two.

In some ways, the most striking results in terms of trends over time concern African-Americans in D.C. After one year, no significant differences were observed for African-American students across a group of public and public school peers after one year. By the end of the second year, however, these students seemed to have overcome the initial challenges of struggling schools. Both younger and older African-American students who switched from public to private schools posted positive and significant gains. On the combined reading and math tests, younger students in private schools scored 9.3 percentile points higher than those who remained in public schools. Older African-American students in private schools scored 10.9 percentile points higher.

Controlling for Demographics
Most research on the impact of private schools attempts to control for differences in family income and other background characteristics among students attending public and private schools. When such controls are used to estimate the impact of switching a child to a private school, it is likely that the impact of switching a public school peer is underestimated.

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In other words, the use of this statistical technique correctly identifies where any differences in achievement arise from the fact that not all of the families who were offered a voucher made use of one.

To see whether the instrumental variable worked in practice as it should in theory, we conducted a second analysis in which we controlled not only for the student's pre-lottery test scores but also for their parents' educational level, their employment status, family size, and whether the family received welfare. If the critics were correct, the introduction of these background characteristics into the analysis should have diminished the estimated effect of attending a private school, because only after these adjustments were made would the analysis have adjusted for the background differences between those who used the voucher and those who did not. But if the use of the lottery as an instrumental variable works as it is expected to work in statistical theory, it would already have corrected for these differences. The results should remain essentially the same.

As statistical theory anticipates, the average differences in combined reading and math test scores of African-Americans in all three cities remained exactly the same—6.3 NPR points—after the adjustments for family background characteristics were introduced. Minor differences in the two estimates were observed within each city. The impact of switching to a private school without controlling for family background in New York City was originally estimated to be 6.4 NPR points; after accounting for family background, the impact was estimated to be 4.2 NPR points. Introducing controls in Dayton decreased the estimated impact from 6.5 to 5.9 NPR points. In Washington, D.C., the estimated impact increased from 9.0 to 9.1 NPR points. In New York and Washington, the estimated impacts, after adding controls for family background, remain statistically significant. In Dayton, the impact just missed the standard threshold for statistical significance.

**Discussion**

It is possible that conditions specific to each city or minor fluctuations in testing conditions might skew results one way or another. But when similar results emerge from the evaluations of school voucher programs in three very different cities, we can be fairly confident that the intervention is the main cause of the differences in achievement.

In general, we found no evidence that vouchers significantly improved the test scores of ethnic groups other than African-Americans, most notably Latinos in New York and whites in Dayton. The impact of vouchers for African-Americans, however, was moderately large. After one year, black students who switched to private schools scored 0.17 standard deviations higher than the students in the control group. After two years, the difference grew to 0.33 standard deviations, roughly one-third of the test-score gap between blacks and whites nationwide. These effects are approximately the same as those observed in Tennessee when class sizes were reduced from 24 students to 15, a much more costly intervention.

Whether the gains from these small, private, scholarship programs will translate to large-scale publicly funded school-choice programs in urban areas is unknown. Only a small fraction of low-income public-school students in New York, Dayton, and D.C. were offered vouchers, and those students made up a small share of the cities' private-school populations. A much larger program carried out for longer periods of time could yield quite different outcomes. But we'll never know unless we try. The nation's capital, the city where the largest effects were observed, would be a good place to begin.

—William G. Howard is an assistant professor of political science at the University of Wisconsin-Madison. Patrick J. Wolf is an assistant professor of public policy at Georgetown University. Paul E. Peterson directs the Program in Education Policy and Governance at Harvard University, where David E. Campbell is a research associate. To view their study in its entirety, log on to www.edmatters.org.

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**Vouchers in Charlotte**

by JAY P. GREENE

**DURING THE 1999-2000 SCHOOL YEAR, the private Children's Scholarship Fund (CSF) offered partial scholarships to low-income students in Charlotte, North Carolina. The partial scholarships defrayed up to $1,700 in tuition expenses at the private elementary or secondary school of a family's choosing. Scholarships were awarded by lottery to families who went through an application process, because not enough funds were available to provide them to all the interested families.**

The awarding of scholarships by lottery created a rare opportunity in educational research—a field experiment in which students were assigned randomly to both public and private schools, thus allowing me to test the effects of receiving a voucher and, more generally, to compare the performance of public and private schools. The study used both standardized test scores and surveys of parents and students to evaluate the effect of the scholarship program on both academic performance and student and parental satisfaction.

**Data**

Only students enrolled in grades 2 through 8 were tested for this study. These students fall into three