

**Test-Score Effects of School Vouchers
in Dayton, Ohio, New York City, and Washington, D. C.:
Evidence from Randomized Field Trials**

by

William G. Howell

Assistant Professor, Department of Political Science, University of
Wisconsin

Patrick J. Wolf

Assistant Professor, Public Policy Institute, Georgetown University
Guest Scholar, The Brookings Institution

Paul E. Peterson

Director, Program on Education Policy and Governance, Harvard University
Senior Fellow, Hoover Institution, Stanford University

and

David E. Campbell

Research Associate, Program on Education Policy and Governance,
Harvard University

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The Program on Education Policy and Governance (PEPG) is located within
the Taubman Center on State and Local Government, John F. Kennedy
School of Government and within the Center for American Political Studies,
Department of Government, Harvard University. Mailing address: Taubman
306, Kennedy School of Government, 79 J. F. Kennedy St., Harvard
University, Cambridge, MA 02138 Phone: 617-495-7976/495-8312; Fax:
617-496-4428;

Website: <http://data.fas.harvard.edu/pepg/>

Test-Score Effects of School Vouchers in Dayton, Ohio, New York City, and Washington, D. C.: Evidence from Randomized Field Trials

(Executive Summary)

In the late 1990s, three privately-funded school voucher programs for students from low-income families were established in the Dayton, Ohio metropolitan area, New York City, and Washington, D. C. The New York City program, sponsored by the School Choice Scholarships Foundation (SCSF), was announced in the fall of 1996; students receiving vouchers entered private schools in the fall of 1997. Two additional programs were created one year later, one in the Dayton metropolitan area, sponsored by Parents Advancing Choice in Education (PACE), and one in D. C., sponsored by the Washington Scholarship Fund (WSF). WSF expanded a previously established program, originally created in 1993. In 1999, the Children's Scholarship Fund, a nationwide school-choice scholarship program, provided additional support to these programs.

The main findings from two-year evaluations of the three programs are as follows:

- In the three cities taken together, the average, overall test-score performance of African American students who switched from public to private schools was, after one year, 3.3 NPR points higher, and, after two years, 6.3 NPR points higher than the performance of the control group remaining in public schools. In each city, the difference after two years was statistically significant.
- No statistically significant effects, either positive or negative, were observed for students from other ethnic groups who switched from public to private schools.
- A difference of 6.3 NPR points in overall test performance is 0.33 standard deviations, generally thought to be a moderately large effect. Nationwide, differences between black and white test scores are, on average, approximately one standard deviation. The school voucher intervention, after two years, erases, on average, about one-third of that difference. If the trend line observed over the first two years continues in subsequent years, the black-white test gap could be eliminated in subsequent years of education for black students who use a voucher to switch from public to private school. But it remains to be seen whether the gains black students experienced after two years continue to increase over time.
- By comparison, the effect of two years of participation by African Americans in a class-size reduction randomized field trial in Tennessee, which reduced class size by seven students, was to improve test scores by 4.9 NPR points, or approximately 0.21 standard deviations. As another point of comparison, the RAND study of *Improving School Achievement* reports what are said to be “remarkable” one-year gains in some states that have rigorous statewide testing programs (e. g., Texas and North Carolina) that are “as much as 0.06 to 0.07 standard deviation[s] per year,” or 0.12 to 0.14

standard deviations over two years. The effects of vouchers after two years, as observed here, are over twice as large.

- These results are from randomized field trials. Students' initial abilities and family background generally do not influence the results, because students were randomly assigned to test and control groups. Furthermore, all results take into account initial ability levels.
 - 42 percent of the students participating in the second year of the evaluation in New York City were African Americans. The percentages in Dayton and D. C. were 74 percent and 94 percent, respectively. Hispanic students participating in the second year of the evaluation constituted 51 percent of the total in New York City, 2 percent in Dayton, and 4 percent in Washington, D. C. Finally, 5 percent of the students participating in the evaluation in New York City were white. The percentages of whites in Dayton and D. C. were 24 percent and 1 percent, respectively. The remaining students came from a variety of other ethnic backgrounds.
- Results for African Americans did not vary significantly by subject matter. Average differences, as observed in the three cities together, between those attending private schools and the control group in public school were 6.2 NPR points in math, and 6.3 percentile points in reading.
- Results varied somewhat by city. Overall test score performance after two years by African American students switching to a private school, as compared to the control group, was, on average, 4.3 NPR points higher in New York City, 6.5 points higher in Dayton, Ohio, and 9.0 points higher in Washington, D. C.
 - In D. C., older students switching to private schools had trouble adapting to their school in the first year, but recovered lost ground and gained substantially by the end of the second year. After one year, older African American students attending private schools trailed their public school peers in overall test performance by 9.0 points. But by the end of two years, this older group of African American students had combined test score performances that were 8.1 percentile points higher than those of the control group.

The vouchers could be used to attend any private school within the metropolitan area that the family chose. In Dayton, the vouchers could also be used to attend a public school outside the school district, but the few students who made this choice were excluded from the evaluation.

Over 20,000 students filled out initial applications for school vouchers in New York City, over 7,500 applied in Washington, D. C., and over 3,000 applied in Dayton, Ohio. Because the demand exceeded the supply of vouchers available, vouchers in all three cities were awarded by lotteries that gave each family an equal chance of winning a voucher.

The voucher programs offered lottery winners annual scholarships of up to \$1,700 to help pay tuition at a private elementary school for at least four years. Telephone applications were received in the fall and winter of the year prior to the first year of the voucher program. In response to invitations sent by the program operators, applicants attended verification sessions where eligibility was determined, students were given baseline tests, older students filled out short questionnaires, and adult family members completed longer questionnaires. The lotteries were held in April or May prior to the beginning of the next school year. The data reported in this paper are taken from student performances on tests administered at follow-up sessions one and two years after the beginning of the program.

Since scholarships were awarded by means of a lottery in each city, the evaluations of these three programs were all designed as randomized field trials, a research method characteristically used in medical research to determine the effectiveness of drugs or other interventions. When an evaluation takes the form of a randomized field trial, the group receiving the offer of a school voucher is, on average, essentially identical to the control group with which it is compared, the only difference between the two groups being the luck of the lottery draw. Any differences observed during the randomized field trial, therefore, may be attributed to the school the child attended, not to the child's initial ability and family background characteristics, which generally do not differ between the two groups.

Students included in the evaluation were entering grades 2-5 in New York City and grades 2-8 in Washington D. C. and Dayton. Only those students who had previously been attending public school were included in the evaluation. Students were tested on the Iowa Test of Basic Skills (ITBS). Each student was given a National Percentile Ranking (NPR) score in math and reading which may vary between 0 and 100. Nationwide, median student performance is 50. Results are reported for math, reading, and a combined score that is the average of the math and reading scores.

At this time the evaluation team is unable to explain why school vouchers have positive effects on African American students but no detectable effects on others. However, the evaluation team plans to explore this question by detailed examination of parental and student reports on school life collected at the time students were tested.

The evaluation of the voucher programs in the three cities is an activity of the Harvard Program on Education Policy and Governance (PEPG), which is jointly sponsored by the Taubman Center on State and Local Government, Kennedy School of Government, Harvard University and the Center for American Political Studies in the Faculty of Arts and Sciences, Harvard University. Paul E. Peterson, Henry Lee Shattuck Professor of Government and Director of PEPG at Harvard University and a senior fellow at the Hoover Institution, Stanford University, is the director of the evaluations of the Dayton and Washington, D. C. programs. William Howell is Assistant Professor, Department of Political Science, University of Wisconsin. Patrick Wolf is Assistant Professor, Public Policy Institute, Georgetown University and Guest Scholar, The

Brookings Institution. David Campbell is a PEPG research associate. The evaluation of the SCSF program in New York City is a collaborative effort jointly conducted by Mathematica Policy Research (MPR) and PEPG, Paul E. Peterson and David Myers, Senior Fellow, MPR, serving as co-principal investigators.

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