

School Vouchers in Washington, D.C.

Lessons for Massachusetts

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by Patrick J. Wolf





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■ **School Vouchers in Washington, D.C.**

Executive Summary

In 2004 the U.S. federal government launched a private school voucher initiative for low-income students in the District of Columbia called the Opportunity Scholarship Program (OSP). As of 2012, over 10,000 students have applied to the program. The policy experiment was accompanied by a longitudinal evaluation of the program that used a highly rigorous experimental research methodology. At least four years after a lottery determined which eligible applicants received or did not receive Opportunity Scholarships, the evaluation concluded that:

- The use of a scholarship to attend a private school increased high school graduation rates by 21 percentage points, from 70 percent to 91 percent, a result that was statistically significant with at least 99 percent confidence;
- The positive impact of the OSP on high school graduation rates was significant for three specific subgroups of students: those who came from schools in need of improvement (a gain of 20 percentage points), those who applied to the program with relatively higher levels of academic performance (25 percentage points), and female students (28 percentage points), results that were statistically significant with at least 95 percent confidence;
- Scholarship students scored an average of 4.8 scale score points higher in reading, amounting to 3.4 months of additional learning, a finding that was statistically significant with 90 percent confidence;
- The positive impact of the OSP on reading achievement was statistically significant at the subgroup level with at least 95 percent confidence for students who had not attended a school in need

of improvement before the program (gain of 7.0 scale score points or 4.2 months of additional learning), students who entered the program in the higher two-thirds of the applicant test score performance distribution (gain of 6.1 scale score points or 4.6 months of additional learning), and females (gain of 6.2 scale score points or 4.0 months of additional learning);

- No significant program impacts were found in math.

Given the relative success of the OSP, especially in boosting the high school graduation rate of highly disadvantaged students, could the program be a model for replication in Massachusetts? This report summarizes the DC experience with private school choice and evaluates the suitability of six Massachusetts cities for a similar program based on the size, composition, and academic proficiency of their student populations and the likely supply of private school slots. It concludes that the cities of Boston and Springfield are a very good fit for a private school choice program, while Worcester and Fall River are a good fit and New Bedford and Lawrence are a fair fit.

On January 29, 2004 President George W. Bush signed into law the District of Columbia School Choice Incentive Act, establishing the first federally-funded school voucher program in the United States. School vouchers are a form of need-based scholarships. They are transfers of government funds to parents to help them pay for a child's tuition and fees at a private school of their choosing. Eighteen such programs currently exist throughout the U.S.

The School Choice Incentive Act was packaged as a three-sector strategy to improve education in the nation's capital. The Act's \$40

million annual appropriation included \$13 million for educational improvements in the District of Columbia Public Schools (DCPS), \$13 million to increase the availability of public charter school facilities in the district, \$13 million for the Opportunity Scholarship (i.e. “voucher”) Program (OSP), and \$1 million for implementation and evaluation of the OSP.¹ The Act passed by a single vote in the U.S. House of Representatives and cleared the U.S. Senate only after being attached to a “must pass” emergency appropriations bill.

Since 2004 nearly 10,000 students have applied for this parental school choice program, a rigorous evaluation of the initiative has been conducted, and the program has been frozen temporarily with the expectation that it would die out. Finally, in April 2011, the OSP was reauthorized and slightly expanded as the final element of a compromise between House Speaker John Boehner and President Barack Obama regarding the Fiscal Year 2011 budget.

The story of our nation’s only federally-financed K-12 private school choice program provides lessons for states like Massachusetts that are seeking to improve educational outcomes for disadvantaged students. Although the OSP faced many political and implementation challenges, a rigorous evaluation of the program demonstrates that access to private school choice significantly boosted the high school graduation rate of students. Program participants’ reading achievement also appeared to improve, especially if they were members of certain relatively advantaged demographic subgroups. No program impacts were observed in math achievement. In addition, parents of scholarship students were more satisfied with their child’s school and viewed it as safer than the public schools.

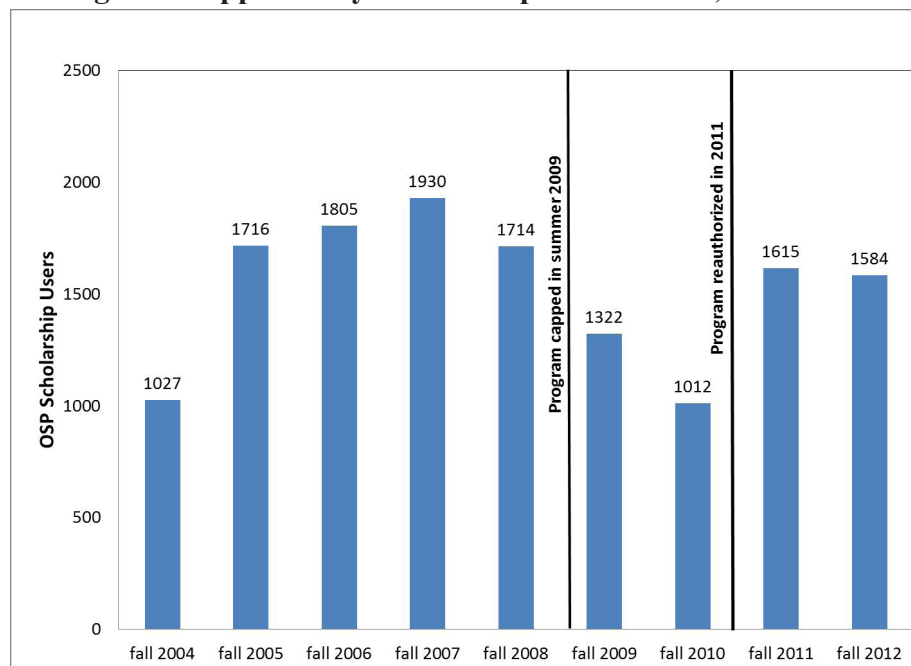
This report tells the story of the Opportunity Scholarship Program, paying special attention to lessons that can be applied to educational improvement in the urban areas of Massachusetts. Section 1 describes the design and initial implementation of the program. Section 2 outlines the main features of the rigorous experimental evaluation of the program’s impacts on participating students and parents. The main results of that evaluation are presented in Section 3. Section 4 concludes by discussing the implications of the OSP results for possible school choice reforms in Massachusetts.

1. The DC Opportunity Scholarship Program

Like the other 17 school voucher programs in the United States directly financed by government, the D.C. OSP is targeted to disadvantaged students. To be eligible to receive a voucher of up to \$7,500 annually, students must live in the District of Columbia and have a family income at or below 185 percent of the federal poverty level—about \$43,000 for a family of four in 2012. Because the program has been oversubscribed most years, vouchers are awarded by lottery, but preference in the lottery is given to public school students attending schools that have been designated “in need of improvement” under the federal government’s No Child Left Behind accountability system. Vouchers can be redeemed at any of more than 50 participating DC private schools. The program has enrolled between 1,000 and 2,000 students each year since 2004 (Figure 1). The nonprofit organization that administers the program for the U.S. Department of Education reported that 1,584 students used scholarships in the fall of 2012.²

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Figure 1. Opportunity Scholarship Enrollments, 2004-2012



SOURCE: Wolf et al., 2009, Table 1, p. xix.

The initial implementation of the program in the spring and summer of 2004 was challenging. The law passed at the end of January. By the middle of March the U.S. Department of Education had selected a non-profit organization to implement the five-year pilot program, the Washington Scholarship Fund (WSF). By the end of March the Department also had completed a competition that resulted in the selection of my independent research team to conduct the evaluation.³ In April, the implementation and research teams collectively developed the protocols and instruments required for students to apply to the program, have their eligibility determined, and be tested and surveyed to support the evaluation. The initial application sessions were staged at the DC Convention Center at the end of April and attracted hundreds of applicants but not enough to fill or oversubscribe the new program.

Oversubscription was crucial to rigorous evaluation of the program, because if students must win a lottery to gain access to a government program, researchers can evaluate the program using a “gold standard” experimental design. Experimental design is highly esteemed in the research community, since random lotteries create a treatment group that gains access to the program and a control group that is approximately similar to the treatment group in all relevant respects except for access to the program. Any significant differences in outcomes between the programmatic treatment group and control group are, by definition, impacts of the program.

To recruit additional applicants, the implementation and research teams reached out to community leaders, especially local ministers, and held application events throughout the city in May and early June. Advocacy organizations sponsored

advertisements in newspapers, radio, and on buses that touted the availability of the OSP. By the end of June the program had 1,848 eligible student applicants for up to 1,700 scholarships, and the research team went to work designing the scholarship lottery.

Three challenges emerged regarding the initial OSP lottery. First, how should existing private school students be handled? Low-income DC residents attending private schools were eligible for the OSP, but the program's designers clearly did not intend for them to be a service priority. The goal of the legislation was to improve student outcomes by making private school choice newly available to disadvantaged families. As a result, the implementers decided to assign private school students lower probabilities than public school students in the lottery. Of the 505 eligible private school applicants to the OSP in 2004, a total of 216 were awarded scholarships. Since the program was heavily oversubscribed by public school applicants from 2005 on, no private school applicants were awarded scholarships after that first year.

A second challenge to structuring the lottery was misalignment between the grade levels of the applicants and the available slots in participating private schools. Although the distribution of student applicants was close to even across the grades, the availability of private school slots was heavily skewed towards the young. While 1,200 slots were available in grades K-8, only 60 slots were available in the high school grades of 9-12. To avoid providing a large number of older students with Opportunity Scholarships they could not use, we divided the applicant sample into "grade bands" of K-5, 6-8, and 9-12 and customized the lottery probabilities within each band to approximately match the

number of available slots. Within each grade band, students who were attending "schools in need of improvement" (SINI) were given higher scholarship award probabilities than non-SINI public school applicants because SINI applicants were designated as a service priority by the statute.

Finally, we faced one additional question – how should the lottery handle siblings? The statute did not specify if the lottery should be based on individual students or entire families. It did state that SINI applicants were a service priority, and many families that applied to the program had some children attending SINI schools and others attending non-SINI public schools or even private schools. To ensure that each student received the priority in the lottery that they were promised by statute, we had to apply the lottery to individual students. As a result, some families were split between children who won the lottery and were awarded scholarships and children who lost the lottery and served in the experimental control group.

After all these challenges were addressed, the initial OSP scholarship lottery was run in early July of 2004. A total of 1,366 students were awarded scholarships and 1,027 (75 percent) used them that fall to attend a participating private school of their parents' choosing. In the second year of program implementation, in the spring of 2005, the program was heavily oversubscribed at all grade levels and an additional 1,088 scholarships were awarded by lottery to students and 797 (73 percent) used them. After 2005 and until the program was capped to new entrants in 2009, scholarships were awarded by lottery each year but only in small quantities to replace OSP students who had graduated from high school or otherwise left the program.

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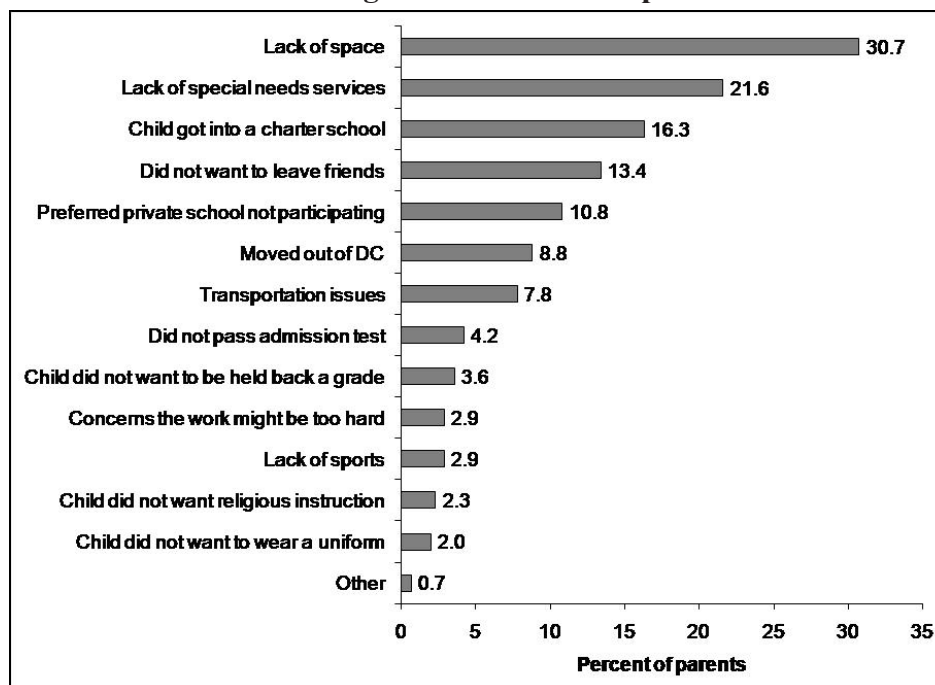
Students' reasons for not using the scholarship varied (Figure 2). The three chief reasons were:

- Lack of available space in the desired private school (31 percent)
- Participating schools did not offer services for the child's learning or physical disability or other special needs (22 percent)
- Child was accepted into a public charter school (16 percent).

The percentage of public school students in DC attending charter schools increased from just over 20 percent at the start of our evaluation in 2004 to nearly 40 percent at its conclusion in 2009. One-fourth of public school applicants to the OSP in 2004 and 2005 were attending public charter schools at the time and nearly one-sixth of students who declined to use a scholarship did so because of the lure of a public charter school.

Private schools participating in the OSP represented the choice set available to parents whose children received scholarships. Approximately two-thirds of the 88 general service private schools that existed in Washington, D.C. in 2004 participated in the OSP at some point.⁴ That set of participating schools was divided almost evenly among four categories: Archdiocesan Catholic (29 percent), Association of Independent Schools of Greater Washington (AISGW) (29 percent), Non-Catholic Faith-Based Schools (25 percent), and secular schools that were not members of AISGW (17 percent). The Archdiocesan schools, however, both offered the most open seats and attracted the most scholarship students, as over half of the students who used their Opportunity Scholarships did so to attend an Archdiocesan Catholic school.

Figure 2. Reasons Given by Parents of Treatment Students for Never Using an OSP Scholarship



NOTES: Responses are unweighted. Respondents were able to select multiple responses each year. Percentages represent the sum of all responses obtained across years one through four of data collection (i.e., longitudinal responses) divided by the sum of all respondents (N = 306) across all of those same years (i.e., longitudinal respondents). As a result, this figure includes initial responses from parents of students who subsequently graded out of the program. Categories with responses from fewer than three parents in any year are collapsed into the "Other reasons" category for confidentiality reasons.

SOURCE: Impact Evaluation Parent Surveys.

The characteristics of participating private schools are important considerations for parents, but in many respects it is how the schools differ from the available public school options that matters most from an educational perspective. In 2008–2009, students in the scholarship program were more likely than students in the control group to attend small schools that were more racially integrated. The schools that scholarship students attended, however, were less likely than the schools of the control group students to have a cafeteria or nurses office or to offer a variety of special programs such as tutors, counselors, or special programs for advanced learners. The scholarship and control group students did not differ in the proportion attending schools that offered a separate library (77 percent versus 79 percent), gym (68 percent and 71 percent), and music program (93 percent and 91 percent).

2. Mandated Evaluation of the OSP

When Congress established the OSP it also mandated that independent researchers evaluate the new program and provide annual reports from 2005 through 2010. The legislation stated that the evaluation should analyze the effects of the program on various academic and nonacademic outcomes of concern to policy makers and use “the strongest possible research design for determining the effectiveness” of the program.⁵ The results of that study are summarized here.⁶

The foundation of the evaluation was a randomized controlled trial (RCT) that compared the outcomes of eligible applicants randomly assigned to receive (treatment group) or not receive (control group) an Opportunity Scholarship. The decision to use this research design was based on the mandate to use rigorous evaluation methods, the fact

that there were more applicants than funds and private school spaces available for most grades in most years, and the requirement that random selection be the vehicle for determining who received a scholarship whenever the program was oversubscribed. An RCT design is widely viewed as the best method for identifying the causal effect of programs on subsequent outcomes.⁷ Random assignment has been used by researchers conducting impact evaluations of other voucher and voucher-type scholarship programs in Milwaukee; Charlotte, North Carolina; New York City; Dayton, Ohio; and Washington, D.C.⁸

The recruitment, application, and lottery process conducted by the program implementer with guidance from the evaluation team created the foundation for the RCT and determined the group of students for whom program impacts were analyzed. Because the goal of the evaluation was to assess both the program’s short-term and longer-term impacts, we needed to focus on early applicants to the program (cohorts 1 and 2) whose outcomes could be tracked for at least four years during the five-year pilot. The 2004 (cohort 1) and 2005 (cohort 2) lotteries produced 1,387 students assigned to the treatment group and 921 students assigned to the control group.⁹ These students constituted the impact analysis sample and represented three-quarters of all students in cohorts 1 and 2 who were not already attending a private school when they applied to the OSP.¹⁰

Data on student test scores and parent views of school safety and satisfaction were collected at the time of application to the program as well as one, two, three, and four or more years after students were randomly assigned to the treatment or control group. I use the phrase “four or more years” to

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characterize the period over which we evaluated the program's impacts because the 14 percent of the study sample in cohort 1 provided final information about their educational outcomes five years after random assignment; whereas, the 86 percent of the sample in cohort 2 provided final outcome data four years after randomization.

Because random assignment approximately equalizes the treatment and control groups regarding measured and unmeasured characteristics, evaluators can determine the impact of the program simply by subtracting the average outcomes for the control group of students from the average outcomes for the treatment group. The difference is the impact of the OSP. For the government evaluation we estimated that impact statistically using a regression model that controls for important characteristics of students at the point of application, such as test scores, disability, family income, mother's education, and race. Controlling for baseline characteristics is not necessary in an RCT, but doing so provides precise statistical estimates of the program's impact.

Our scholarship lotteries had the tremendous advantage of randomly assigning eligible applicants to two groups expected to differ only in the fact that one group received a scholarship offer and the second group did not. However, not all students offered Opportunity Scholarships actually used them, and the subgroup of scholarship users was different in important ways from the subgroup of scholarship decliners. To generate an experimental estimate of the impact of actually using an Opportunity Scholarship to attend a private school, called the *impact of treatment* (IOT) estimate, we first took the simple difference between all students offered a scholarship (whether or not they used it) and all students in the

randomized control group, and then applied a common statistical approach called a *Bloom adjustment*.¹¹ This adjustment preserved the random assignment that is central to the evaluation but netted out students in the treatment group who never used their scholarship and therefore could not have experienced a program impact from it.¹² The experimental impact of using an Opportunity Scholarship on student outcomes and parent perceptions is the topic of the next section.

3. Impact of the Program on Key Outcomes After at Least Four Years

The analysis described here was conducted using data collected on students at the end of the 2008–2009 school year, at least four years after they applied to the OSP.¹³ By the end of the 2008–2009 school year, 22 percent of the impact sample (500 students) had aged to the point that they could have completed 12th grade. This means that for the first time in an experimental evaluation of a private school choice program we were able to estimate the program's impacts on educational attainment in the form of high school graduation rates.

The OSP's impacts on the overall group of students that were randomly assigned were the focus of the study. The research provided additional consideration of the programmatic impacts on policy-relevant subgroups of students. The subgroups included students who were attending "schools in need of improvement" (SINI) versus non-SINI schools at application, those performing relatively higher or lower at baseline, and girls or boys.

Impacts on Student Attainment

The attainment analysis focused on students in the impact sample who were old enough to have graduated before the summer of 2009. A parent follow-up survey asked a series of

factual questions about the child’s educational and vocational status, yielding answers that permitted us to determine whether each student had received a high school diploma by the end of the 2008–2009 school year. Differences in parental reports of student educational attainment between the treatment and control groups were then measured via the evaluation’s standard regression analysis, and the statistical adjustment was made to account for students who never used their scholarship. The results, shown in Table 1 and Figure 3, are summarized here:

- The use of an Opportunity Scholarship increased students’ graduation rate by 21 percentage points, from 70 percent to 91 percent;
- The positive impact of the OSP on high school graduation rates was significant for three specific subgroups of students: those who came from SINI schools (a gain of 20 percentage points), those who applied to the program with

relatively higher levels of academic performance (25 percentage points), and female students (28 percentage points);

- These positive impacts of the program on graduation rates were statistically significant with between 98 percent and 99 percent confidence; The estimates for other subgroups were also positive and of similar size but were not statistically significant.
- The magnitude of the statistically significant gains in high school graduation rates for the scholarship students ranged from 43 percent of a standard deviation for SINI students to 65 percent of a standard deviation for females, which classifies them as moderate-to-large program effects.¹⁴

The data from the OSP evaluation were absolutely conclusive regarding the fact that students graduated from high school at higher rates as a result of the program.

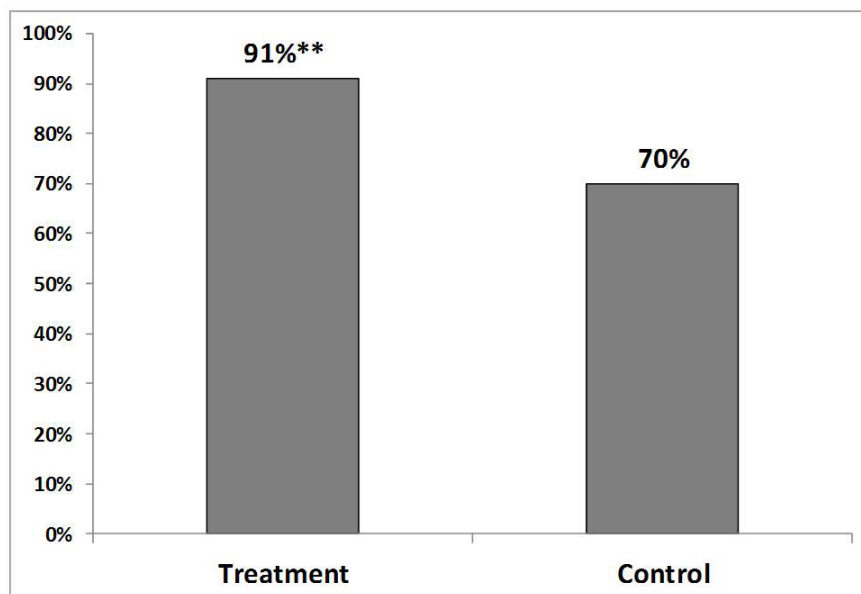
**Table 1. Impact Estimates of the Use of a Scholarship:
Percent with High School Diploma**

	Impact of Scholarship Use (IOT)		
High School Diploma	Adjusted Impact Estimate	Effect Size	Confidence Level
Full sample	.21**	.46	.99
SINI 2003-05	.20*	.43	.99
Not SINI 2003-05	.21	.54	.54
Lower performance	.20	.40	.88
Higher performance	.25*	.61	.98
Male	.14	.30	.74
Female	.28**	.65	.99

*Statistically significant at the 95 percent confidence level.
**Statistically significant at the 99 percent confidence level.

NOTES: Means are regression adjusted using a consistent set of baseline covariates including baseline reading and math test scores, indicator for previously attending a failing public school, age, grade, gender, race, indicator for special needs, indicator for mother having a high school diploma, indicator for mother having a college degree, indicator for mother employed, family income, number of children in family, and number of months family has lived at current address. Impact estimates are reported as marginal effects. Effect sizes are in terms of standard deviations. Valid N = 316. Sample weights used. Robust regression calculations generated by clustering at the family level.

Figure 3. Impact of Scholarship Use on High School Graduation Rates: Full Sample



** Statistically significant at the 99 percent confidence level

Impacts on Reading Achievement after At Least Four Years

The OSP had a marginally significant impact on reading achievement after at least four years. Scholarship students scored an average of 4.8 scale score points higher (3.4 months of additional learning) in reading. Figure 4 shows reading achievement impacts of the voucher program after each year. The impact of the OSP on student reading achievement for the entire study sample grew steadily across the first three years of the program and then settled at a gain of around 5 scale score points.

After at least four years, the offer of a scholarship had a statistically significant positive impact on reading achievement (with 95 percent confidence) for half the student subgroups (Table 2). The subgroups with positive reading impacts due to the program included:

- Students who had not attended a SINI school before the program (gain of

7.0 scale score points or 4.2 months of additional learning);

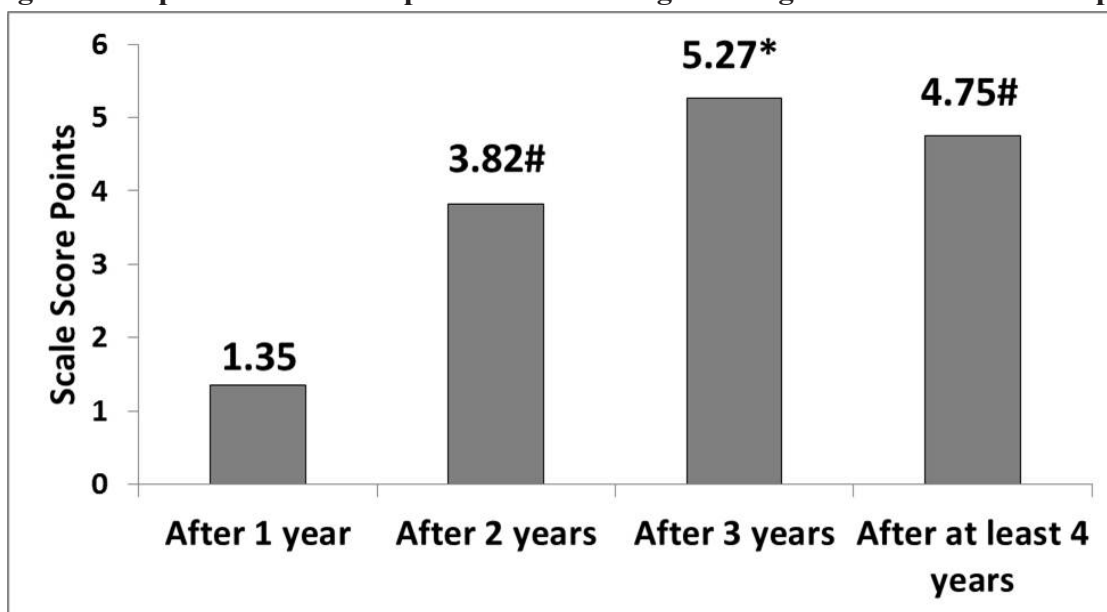
- Students who entered the program in the higher two-thirds of the applicant test score performance distribution (gain of 6.1 scale score points or 4.6 months of additional learning);
- Females (gain of 6.2 scale score points or 4.0 months of additional learning).

There was no significant impact in reading for students who applied from a SINI school, students who entered the program in the lower one-third of the applicant test score performance distribution, or for male students as separate subgroups.¹⁵

Impacts on Math Achievement after At Least Four Years

The use of a scholarship had no statistically significant impact on math achievement overall, nor for any of the six subgroups examined (Table 3).¹⁶ Although we cannot know for sure why the OSP students appeared to benefit in reading but not math

Figure 4. Impact of Scholarship Use on Increasing Reading Test Scores: Full Sample



#Statistically significant at the 90 percent confidence level.
 *Statistically significant at the 95 percent confidence level.

achievement, two possible explanations are that the Archdiocesan Catholic schools that many OSP students attended implemented an intensive literacy intervention for their students but employed their standard curriculum in math, or that there is such a dearth of quality math teachers in both the private and public school sectors that neither group was able to demonstrate an advantage regarding math outcomes.

Impacts on Reported Safety and School Satisfaction

Although school choice educational outcomes of student attainment and achievement are given great attention by researchers and the media, parents also quite reasonably seek other, non-academic outcomes from choice programs. Primary among these non-cognitive outcomes of school choice are perceptions of school safety and overall satisfaction with a child’s school. School safety may even emerge as a higher priority of parents in the wake of the tragic school shooting in Newtown, Connecticut.

School safety was a valued feature of schools for the families who applied to the OSP. Seventeen percent of cohort 1 parents at baseline listed school safety as their most important reason for seeking to exercise school choice, making it second only to academic quality (48 percent) among the available reasons.¹⁷ A separate study of why and how OSP parents choose schools, which relied on focus group discussions with participating parents, found that school safety was among their most important educational concerns.¹⁸

Unlike with student achievement, there are no specific tests to evaluate school safety. Various indicators, such as the presence or absence of violence, property destruction, cheating, and drug distribution, collectively signal the relative orderliness and thus perceived safety of the school environment. Students and parents can be surveyed regarding the extent to which such indicators of disorder are or are not a problem at their or their child’s school. Since most of the students in the study were

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Table 2. Impact Estimates of the Use of a Scholarship: Reading Achievement

	Impact of Scholarship Use (IOT)			
Reading Achievement	Adjusted Impact Estimate	Effect Size	Confidence Level	Additional Months of Learning
Full sample	4.75#	.13	.94	3.4
SINI 2003-05	1.33	.04	.24	NA
Not SINI 2003-05	6.99*	.19	.98	4.2
Lower performance	1.54	.05	.26	NA
Higher performance	6.08*	.18	.96	4.6
Male	3.07	.09	.56	NA
Female	6.24*	.18	.95	4.0

#Statistically significant at the 90 percent confidence level.

*Statistically significant at the 95 percent confidence level.

NOTES: Results are for cohort 1 five years after random assignment and cohort 2 four years after random assignment. Means are regression adjusted using a consistent set of baseline covariates. Impacts are displayed in terms of scale scores. Effect sizes are in terms of standard deviations. Valid N for reading = 1,328. Sample weights used. Robust regression calculations generated by clustering at the family level.

Table 3. Impact Estimates of the Offer and Use of a Scholarship: Math Achievement

	Impact of Scholarship Use (IOT)		
Math Achievement	Adjusted Impact Estimate	Effect Size	Confidence Level
Full sample	.85	.03	.29
SINI 2003-05	-.47	-.02	.10
Not SINI 2003-05	1.71	.05	.44
Lower performance	1.61	.05	.29
Higher performance	.58	.02	.17
Male	-1.38	-.04	.32
Female	2.84	.08	.63

NOTES: Results are for cohort 1 five years after random assignment and cohort 2 four years after random assignment. Means are regression adjusted using a consistent set of baseline covariates. Impacts are displayed in terms of scale scores. Effect sizes are in terms of standard deviations. Valid N for math = 1,330. Sample weights used. Robust regression calculations generated by clustering at the family level.

relatively young and may not have possessed the cognitive ability to discern levels of the safety indicators, here we present the results from the parent surveys. Parent responses were consolidated into an index of safety and an orderly school climate and analyzed to determine if they differed due to participation in the school choice program.

Overall, the parents of students using an Opportunity Scholarship subsequently reported their child’s school to be safer and more orderly than did the parents of students in the control group (Table 4). The impact of using a scholarship was a statistically significant increase of .58 on the 10-point safety index, equal to a modest effect size of 17 percent of a standard deviation.

This impact of using a scholarship on parental perceptions of safety and an orderly school climate was significant for three of the subgroups: parents whose children had

not attended a SINI school, parents whose children entered the program with higher test scores, and parents of girls. We can be less confident that the program impacted the school safety perceptions of parents of students from SINI schools, parents of students who entered the program with relatively lower levels of academic achievement, and parents of boys.

Economists have long used customer satisfaction as a proxy measure for product or service quality.¹⁹ Satisfaction is also an outcome studied in the previous evaluations of K-12 scholarship programs, all of which concluded that parents tend to be significantly more satisfied with their child’s school if they have had the opportunity to select it. In our study, parent satisfaction was measured by the percentage that assigned their child’s school a grade of A or B.

Table 4. Impact Estimates of the Use of a Scholarship on the Full Sample and Subgroups: Parent Perceptions of Safety and an Orderly School Climate, 2008-09

	Impact of Scholarship Use (IOT)		
Safety and an Orderly School Climate: Parents	Adjusted Impact Estimate	Effect Size	Confidence Level
Full sample	.58**	.17	.98
SINI 2003-05	.13	.04	.23
Not SINI 2003-05	.88**	.27	.99
Lower performance	.61	.18	.80
Higher performance	.57#	.17	.94
Male	.48	.14	.80
Female	.67#	.20	.94

#Statistically significant at the 90 percent confidence level.

*Statistically significant at the 95 percent confidence level.

**Statistically significant at the 99 percent confidence level.

NOTES: Results are for cohort 1 five years after random assignment and cohort 2 four years after random assignment. Means are regression adjusted using a consistent set of baseline covariates. Effect sizes are in terms of standard deviations. Valid *N* = 1,224. Parent survey weights were used.

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Table 5. Impact Estimates of the Use of a Scholarship on the Full Sample and Subgroups: Parent Reports of Satisfaction with Their Child’s School, 2008-09

	Impact of Scholarship Use (IOT)		
Parents Who Gave Their School a Grade of A or B	Adjusted Impact Estimate	Effect Size	Confidence Level
Full sample	.10*	.22	.99
SINI 2003-05	.04	.08	.49
Not SINI 2003-05	.15**	.32	.99
Lower performance	.12*	.25	.95
Higher performance	.09*	.20	.97
Male	.10#	.21	.94
Female	.10*	.22	.97

#Statistically significant at the 90 percent confidence level.

*Statistically significant at the 95 percent confidence level.

**Statistically significant at the 99 percent confidence level.

NOTES: Results are for cohort 1 five years after random assignment and cohort 2 four years after random assignment. Means are regression adjusted using a consistent set of baseline covariates. Impact estimates are reported as marginal effects. Effect sizes are in terms of standard deviations. Valid $N = 1,227$. Parent survey weights were used.

At least four years after random assignment, parents overall were more satisfied with their child’s school if their child used a scholarship to attend a participating private school (Table 5). The impact of using a scholarship was a difference of 10 percentage points in parent’s likelihood of giving their child’s school a grade of A or B, from 68 percent for the control group to 78 percent for scholarship users. The effect size of this impact was 22 percent of a standard deviation.

For each of the six subgroups of parents, those in the treatment group of scholarship users were more satisfied than their counterparts in the control group. These differences, however, were not statistically significant at the subgroup level for the parents of scholarship students from SINI schools. The effect sizes in the other subgroups ranged from 20 to 32 percent of a standard deviation or between modest and moderate in size.

Summary of the OSP Impacts

Using an Opportunity Scholarship to attend a private school had a variety of positive effects on student and parent outcomes. Students graduated from high school at a rate that was 21 percentage points higher due to the scholarship opportunity. Students exhibited about four additional months of learning in reading if they participated in the program, though no impacts were apparent in math. Parents tended to be more satisfied with their child’s private school and they viewed it as somewhat safer. These positive impacts of the DC OSP were clearest for certain subgroups of students with relative advantages – those who hadn’t previously attended a SINI school, those who performed in the top two-thirds of initial test score distribution, and girls. No negative outcomes of participating in the OSP were observed overall or for any specific subgroups of students.

Why did the OSP demonstrate positive impacts in reading but not in math? We did not anticipate any specific pattern of achievement results for our evaluation, so the study was not designed to pinpoint “why” certain outcomes did or did not change. Anecdotally we heard from the Superintendent of Schools for the Archdiocese of Washington that the Catholic schools, which enrolled a majority of the OSP participants, instituted a special remedial reading intervention to help improve upon the OSP students’ low literacy levels. It is possible that this emphasis on reading remediation, which had no corollary on the math side, explains the voucher program gains in reading but not math. A second plausible reason why the OSP produced student gains in reading and not math is that high-quality math teachers are in short supply in both the public and private sectors. It may be that students were receiving average math instruction, whether they used an Opportunity Scholarship or were assigned to the control group, so no differences in math outcomes were produced. Due to effective reading remediation, the dearth of quality math teachers, or some other unknown cause, students participating in the OSP experienced statistically significant reading gains but no detectable math impacts from the program.

Why were the positive impacts of the OSP clearer and larger for some subgroups of students with relative advantages but less clear and smaller for other student subgroups? First, although the program demonstrated statistically significant impacts for certain subgroups and not others, the differences in the program effects between the subgroups themselves were not significant. We can simply say with greater certainty that students who never attended a SINI school, higher baseline performers, and girls experienced clear reading gains (and parental views of

greater school satisfaction and safety) as a result of the program.

That being said, if the program’s effects at least appeared to be clearer and stronger for certain subgroups, why might that be so? Students who did not previously attend SINI schools and students in the upper two-thirds of the baseline performance distribution – two subgroups whose membership overlapped substantially – may have realized clearer benefits from the OSP because, though economically disadvantaged, they were not overwhelmingly disadvantaged from an educational standpoint. It may have been that the DC private schools participating in the program were better primed to deliver positive value-added to students who were moderately but not severely disadvantaged. Moreover, a relatively high percentage of the students who scored in the lower-third of the baseline test score distribution were special education students with Individualized Education Plans (IEPs). Although private schools often serve students with mild-to-moderate physical and learning disabilities, and some private schools exclusively enroll severely disabled students, most private schools are not designed to provide the full slate of extra accommodations to students with special needs that public schools provide.²⁰ That is probably why about half of the students with IEPs who were offered Opportunity Scholarships never used them. That low rate of voucher usage also could explain why students that performed in the lower-third of the achievement distribution at baseline did not exhibit statistically significant achievement gains from the program. When only a small proportion of the treatment group actually distinguishes itself from the control group by experiencing the programmatic treatment, it is simply less likely that outcomes will differ between the two groups.

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It is less clear why girls appeared to benefit from the program, in terms of both educational attainment and reading achievement, more clearly and strongly than did boys. Books about how boys now struggle to keep pace with girls in elementary school, secondary school, and especially in college have become a cottage industry.²¹ Pedro Noguera has even documented how African American and Latino boys, in particular, tend to struggle in school relative to their female counterparts, largely because they tend to be less cooperative and less motivated in school than girls.²² It may be that the OSP delivered clearer benefits for girls because girls as a class are better primed to benefit from the positive educational environments in private schools than are boys. Still, these are only speculations for further research to explore.

4. Lessons for Massachusetts

The District of Columbia Opportunity Scholarship Program took place in a specific placelike no other one on earth. Our nation's capital is governed by a unique set of institutional arrangements that provide the U.S. Congress and President with extensive funding and oversight responsibilities that do not apply to any other U.S. state or municipality. Washington, DC, is, in fact a municipality with some of the responsibilities of a state. The school-age population of children in the city is overwhelmingly minority – African American in particular – and mostly low-income. The public school system in DC is so well-funded that Secretary of Education Arne Duncan famously declared that “DC [public schools] has had more money than God for a long time, but the outcomes are still disastrous.”²³ Because of all these peculiarities of Washington, DC we need to be cautious in drawing conclusions from the OSP regarding what we might expect

to see from private school choice initiatives in Massachusetts.

Massachusetts, itself, is almost unique among U.S. states regarding the reach of its constitutional prohibition against government-sponsored private school choice. Only the Commonwealth and Michigan have what analysts call “super-Blaines” – anti-aid amendments to state constitutions inspired by Maine Senator James G. Blaine in the 1800s that strictly prohibit state government funds from being directed to private religious organizations even based on the decisions of private citizens.²⁴ Unless Massachusetts’ anti-aid amendments are stricken from its constitution, any school voucher program in the state would have to be funded by the U.S. federal government through a block grant arrangement. The likelihood of the federal government funding such a voucher experiment in the Commonwealth appears to be remote at least in for now.

In spite of such cautions, however, there are good reasons to think that the story of the DC OSP holds lessons relevant to those who want to improve educational outcomes for disadvantaged students in the Bay State and that a voucher experiment should be attempted in Massachusetts. The record of private school choice in Washington, DC is not very different from the results from rigorous evaluations of voucher programs in other cities, which indicate similar positive effects of vouchers, especially on African-American participants.²⁵ With the exception of David Figlio’s evaluation of the statewide Florida Tax-Credit Scholarship Program, all of the scientific evaluations of private school choice to date have focused on programs in urban areas. Therefore, in the remainder of this section I will discuss the lessons from the OSP that would seem to apply to a possible

future private school choice program targeted to low-income families in various Massachusetts cities.

Private school choice programs tend to be successful in moderate-to-large cities. Urban metropolises have two things that are essential to any school choice program: many interested customers and a supply of established private schools. Choice programs seek an interested constituency and that constituency tends to be low-income students in urban environments that lack a critical mass of high-quality public school options. In the eight years the DC OSP has operated, not a single new private school has opened in Washington to serve voucher students. Every student who has used an Opportunity Scholarship has done so at a private school that operated prior to the program's launch. Small, targeted, means-tested school voucher programs do not appear to generate a new "supply" of private schools, at least in the short run. Starting a new private school is a major endeavor involving a substantial investment of time and money. The prospect of maybe enrolling a few dozen students subsidized by government vouchers is simply not enough to convince school entrepreneurs to take the plunge. In a twist on the famous line in the movie *Field of Dreams*, even if you come, they probably won't build it.

Larger and longer-running school voucher programs, such as the Milwaukee Parental Choice Program, have generated a substantial supply-side response of new private schools, though schools that opened specifically to serve Milwaukee voucher students have been of uneven quality.²⁶ In sum, the best venues for new private school choice programs seem to be urban areas with lots of low-income students (especially African Americans), low-quality public schools, and an existing supply

of high-quality private schools interested in serving disadvantaged students. Washington, DC had all three of those elements.

Since Massachusetts has a handful of urban areas with substantial concentrations of disadvantaged students, we might expect to see similar positive results of a voucher program targeted to those areas (Table 6). Although subjectivity is inescapable when assessing the relative fitness of a given area for a private school choice program, Boston and Springfield seem to be particularly well-situated to support a successful school voucher program, as they have large populations of low-income school children, many of them African American, as well as disappointing student achievement scores. Only 14 percent of 8th graders in the Springfield public school district scored proficient or above on the MCAS in 2012, suggesting that many parents of Springfield students may be particularly interested in educational options. Although Boston hosts just one private school for every five public schools, whereas DC has more private schools than public ones, Boston does have seven private high schools and recent evidence of low private-school enrollments and therefore a ready supply of open slots in existing private high schools that could be filled by voucher students. Springfield has about one private school for every three public schools and, like Boston, has a handful of private high schools and recent evidence of open slots in area private schools. For all of these reasons, I view the cities of Boston and Springfield as a very good fit for a means-tested school voucher program.

Two other Massachusetts cities, Worcester and Fall River, I rate as at least good in their fitness for a targeted private school choice program. Nearly three-quarters of public school students in Worcester are low-income,

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about one in six is African American, and only one-third of Worcester 8th graders were proficient or better in math in 2012. Moreover, Worcester is likely to have a sufficient supply of quality private schools to meet the demand for choice, as it has more than one private school for every three public schools, five private high schools, and a recent history of under-enrollment in its private schools. Fall River has a similar profile except that it has less than half the total student population, half the proportion of African American students that Worcester has, but a much larger private school sector. Fall River is unique among Massachusetts cities in having nearly as many private as public schools. Two recent news stories have documented that the large supply of existing private schools in Fall River is suffering from under-enrollment, clearly signaling the capacity for the city's private schools to accommodate a school voucher program.

Finally, New Bedford and Lawrence have some characteristics that are associated with voucher program success but also some features that are not historically connected with private school choice initiatives. New Bedford has a relatively sizeable African American student population for a Massachusetts city, a discouraging record of public school student performance in 8th grade math, and one private school for every three public schools in the city. These three characteristics would make New Bedford an attractive venue for private school choice. At the same time, New Bedford has a relatively modest-sized student population, less than two-thirds of whom are low-income, only one private high school, and no historical evidence of open seats in private schools. Those characteristics make New Bedford somewhat less attractive as a target for private school choice. Lawrence has the

highest concentration of low-income students among the cities of Massachusetts, dismal 8th grade math proficiency rates, and two private high schools – all characteristics that bode well for private school choice. On the other hand, Lawrence has a relatively small student population, a tiny fraction of whom are African American, only one private school for every five public schools, and no historical evidence of slack supply in private schools. In my view, Lawrence and New Bedford qualify as merely fair targets for a means-tested private school choice program.

Given that these six Massachusetts cities all are at least fair or better targets for private school choice, state policy makers could easily focus any private school reform on them simply by restricting such a program to low-income students in cities with total populations over 75,000 or school-age populations over 12,000. The many income-disadvantaged students in those six urban areas would thereby qualify for educational options previously not available to them. If policy makers were more inclined to focus the private school choice opportunity more narrowly on the Massachusetts cities likely to have the greatest demand for and ability to support a school voucher program, they could limit the program to low-income students in cities with overall populations greater than 150,000 or school-age populations higher than 25,000. Doing so would limit the private school choice program to the larger cities of Boston, Worcester, and Springfield. Unfortunately, narrowly targeting the school choice initiative in such a way would leave out Fall River which appears to have at least some conditions that predict a substantial need for private school choice as well as a very robust existing set of private schools to supply that need.

Table 6. Local Conditions in Massachusetts Urban Areas Relevant to the Targeting of Private School Choice

City	Student Population	Percent FRL	Percent African-American	Percent Proficient - 8th Math	Private/Public Schools	Private High Schools	Evidence of Slack Supply	Private School Choice Fit
Boston	71,641	69.5	33.7	35	.19	7	Substantial	Very Good
Springfield	30,153	85.6	20.7	14	.35	4	Substantial	Very Good
Worcester	28,062	72.1	13.6	34	.37	5	Substantial	Good
Fall River	13,329	78.2	6.8	35	.81	2	Some	Good
New Bedford	15,497	64.4	11.6	23	.33	1	None	Fair
Lawrence	15,734	86.9	1.7	19	.21	2	None	Fair

SOURCES: Student population as children ages 5-18 calculated from US Census Bureau, "State and County Quick Facts," 2011, Retrieved from <http://quickfacts.census.gov/cgi-bin/qfd/lookup?state=25000>. Data on percent Free or Reduced Lunch (FRL), percent African American, percent proficient in 8th grade math, and number of public schools retrieved from the Massachusetts Department of Education website <http://profiles.doe.mass.edu/>. Proficiency rates based on 2012 MCAS scores. Number of private schools and number of private high schools apply to 2009-10 school year and were taken from NCES private school search; <http://nces.ed.gov/surveys/pss/privateschoolsearch/>.

Evidence of slack supply based on news reports including Kevin Cullen, "A School on the Brink," *Boston Globe*, November 29, 2007; Peter Stidman, "Class Is Out at St. Peter's School," *Dorchester Reporter*, June 18, 2008; "Massachusetts Catholic School Closing," *The Associated Press State & Local Wire*, March 31, 2009; "Massachusetts City Losing Last Catholic School," *The Associated Press State & Local Wire*, March 19, 2009; "Franklin County's Last Catholic School Closing," *The Berkshire Eagle*, January 28, 2011; "Chicopee Roman Catholic School Closing," *The Associated Press State & Local Wire*, March 22, 2012; Mary Jo Hill, "St. Joseph Elementary Closing: School Succumbs to Decline in Enrollment," *Worcester Telegram and Gazette*, April 11, 2007; Jacqueline Reis, "Economy Hurting Private Schools: Enrollment Down by a Fifth Since '06," *Worcester Telegram & Gazette*, February 26, 2012; Doug Fraser, "Holy Trinity Faces Final Chapter," *Cape Cod Times*, January 14, 2012; "Large Gift not Enough to Keep Cape Cod School Open," *The Associated Press State & Local Wire*, March 28, 2012.

Someone might object, noting that, in spite of the circumstances in Massachusetts cities that suggest their ripeness for private school choice, public charter schools can accomplish as much if not more for disadvantaged students with less disruption to the existing educational system. Research does suggest that public charter schools deliver approximately similar benefits to disadvantaged urban students as do private school vouchers.²⁷ Specifically, Joshua Angrist and his colleagues find that Massachusetts public charter schools clearly benefit disadvantaged students in the state's urban areas.²⁸ Atila Abdulkadiroglu and his colleagues report especially large positive achievement effects from Boston's independent public charter schools.²⁹ Still, many parents specifically desire a religious environment for their child.³⁰ For them, private school choice is necessary to provide the right venue, infused

with religious values, for their child to learn and prosper. Another way to interpret the school choice evidence regarding charters and vouchers is that voucher programs deliver the same achievement benefits as public charter schools while also adding the option of a religious component to each child's education.

In addition to providing evidence in support of enacting a private school choice program in Massachusetts, the experience of the DC Opportunity Scholarship Program also provides some lessons regarding how to implement private school choice. Ideally, policy makers should allow for at least 18 months to completely implement a new school choice program, as it takes time to get the word out to potential participants and organize the activities necessary to make school choice happen in a community.

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Supporters should advertise the program extensively especially within communities with high numbers of low-income and minority families. One lesson we learned when recruiting participants for the OSP was that many families were confused about the core purpose of the scholarship program. The initial response of several parents was, “My child would never qualify for a scholarship because she is struggling in school.” Implementers had to explain to such families that the private school scholarships are not limited to high achieving students. To the contrary, they are intended precisely for disadvantaged students who are struggling in their current public school.

Another lesson from the DC experience with school choice is that it is important to make the program rules and application as clear and simple as possible. Since the DC OSP was a means-tested federal program, the application form was quite complex and implementation staff often had to coach parents through the process of completing the information and providing the necessary documentation to verify student residence, grade, school, and family income. Photocopy machines were made available at registration events to help families generate copies of their important documents to attach to their applications. A single staffer was designated for “quality control” and had to confirm that each application was complete before accepting it. The rules regarding which educational expenses could be covered by the voucher were initially vague and complex but were later clarified and simplified by the program implementer at the request of participating parents.³¹ Finally, policy makers are encouraged to provide for a rigorous independent evaluation of any private school choice program in Massachusetts so the public can learn what effect the initiative

is having on students, parents, schools, and communities.

One of the most important things private school vouchers can accomplish is to increase high school graduation and college attendance rates for disadvantaged students. Graduating from high school, as opposed to dropping out, is associated with a variety of important quality-of-life outcomes such as longevity, better health, higher lifetime earnings, and lower rates of teenage pregnancy, incarceration, and suicide.³² More than one-in-six high school students in Massachusetts fails to graduate from high school on time. The rate is three-in-ten for the Commonwealth’s African American students.³³ A follow-up study to the official DC OSP evaluation, which I performed with Michael McShane, found that the five-year operation of the program during its pilot period produced an estimated 421 extra high school graduates in DC. The benefits that will be realized because 421 students who would have dropped out of high school absent the program instead graduated, when compared with program costs, yield a benefit/cost ratio of 2.62 or a return on investment of \$2.62 for each \$1 spent on the program.³⁴ The federal government should not be the only entity realizing such substantial benefits of private school choice. The taxpayers, citizens, and children of the Commonwealth of Massachusetts ought to consider reaping such a windfall as well.

About the Author:

Dr. Patrick J. Wolf is Professor of Education Policy and 21st Century Endowed Chair in School Choice in the Department of Education Reform at the University of Arkansas. He has led or assisted with most of the key evaluations of private school voucher programs over the past 15 years, including recent studies of programs in Washington, DC, and Milwaukee, Wisconsin, as well as the new statewide program in Louisiana. Dr. Wolf has authored, co-authored, or co-edited three books and over 90 journal articles, book chapters, and policy reports on school choice, civic values, special education, public management, and campaign finance. His research has been discussed or he has been quoted in major media venues including *National Public Radio*, *The News Hour*, *ABC World News Tonight*, CNN, MSNBC, *The New Republic*, *US News and World Report*, *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *USA Today*, *The Economist*, and *Education Week*. A 1987 graduate of the University of St. Thomas in St. Paul, MN, he received his Ph.D. in Political Science from Harvard University in 1995.

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Endnotes

1. Title III of Division C of the Consolidated Appropriations Act, 2004, P.L. 108–199.
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3. The lead organization responsible for the evaluation was Westat. Georgetown University, where I was on the faculty at the time, was a subcontractor for the study. When I moved to the University of Arkansas the project traveled with me to there. The other main researchers on the team were Babette Gutmann of Westat, Michael Puma of Chesapeake Research Associates, Brian Kisida of the University of Arkansas, Nada Eissa of Georgetown University, and Lou Rizzo of Westat.
4. Excluded from this count are about a dozen private schools that serve a highly specialized clientele, including a ballet school and a handful of schools that exclusively enroll students with severe disabilities.
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9. By the 2008–2009 school year, 94 treatment group students and 202 control group students had “graded out” of the program. That is, 296 members of the impact sample were forecast to have exceeded twelfth grade based on their grade upon application to the program. Because students were always tested in their forecast grade (calculated by adding the years since application to their grade upon application), and because the SAT-9 does not have a test for grades 13 or higher, these students were not testable and thus were classified

as grade-outs for the purposes of the 2009 test score analysis. These grade-outs were not invited to data collection events.

10. According to the statute, students in the district living in families with incomes below 185 percent of the poverty level who were already attending private schools were eligible for the program. Because they were the lowest service priority, Washington Scholarship Fund (the program's administrator) offered scholarships only to existing private school students during the first year of partial program implementation. In that first year, 505 existing private school students were eligible applicants to the program, and 216 were awarded scholarships in a lottery separate from the lottery designed for public school students. The private school students subject to a lottery in that first year were not followed for purposes of the evaluation, because the nature of the treatment intervention was distinctive for them. Existing private school students sought scholarships in order to remain in private schools and not to switch from public to private schools.

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13. In previous analyses, the two cohorts of students in the impact sample had the potential to experience the same number of years in the program (e.g. three years after application). In spring 2009, the last year evaluation data were collected, cohort 1 students who applied in 2004 (14 percent of the sample) could have used their scholarships for five years, whereas cohort 2 students who applied a year later (86 percent of the sample) could have used their scholarship only for four years. For this reason, we refer to impacts as "after at least four years" because a small portion of the sample—both treatment and control—were in the study a year longer.

14. This classification of the magnitude of a programmatic effect is based on the work of Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences*, 2nd Edition (Hillsdale, NJ: Erlbaum).

15. Interaction terms used to test the significance of the differences between the treatment impacts on each subgroup pair (e.g., SINI versus non-SINI) all proved to be insignificant. The practical meaning of that result is that, although some distinct subgroups demonstrated statistically significant impacts at the subgroup level, the impact of the treatment was not significantly different across subgroups. Moreover, these estimations of program impacts at the subgroup level inevitably are less precise, and therefore less likely to identify statistically significant impacts, than the overall analysis of impacts, because each subgroup is merely a portion of the much larger impact sample. For these reasons, the overall achievement results of a statistically significant program impact in reading and no significant impact in math are the clearest and most reliable achievement results from the year 3 analysis and should be given the greatest weight when the program is evaluated on the metric of student achievement.

16. The magnitudes of all these estimated achievement effects are lower than the threshold of 0.12 standard deviations, estimated by the evaluation's power analysis to be the study's minimum detectable effect size.

17. Patrick Wolf, Babette Gutmann, Nada Eissa, Michael Puma, and Marsha Silverberg, *Evaluation of the DC Opportunity Scholarship Program: First Year Report on Participation*, U.S. Department of Education, Institute for Education Sciences, National Center for Education Evaluation and Regional Assistance, Washington, DC: U.S. Government Printing Office, 2005, <http://ies.ed.gov/pubsearch/pubsinfo.asp?pubid=NCEEDCOSP05>, p. C-7.

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