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Jay P. Greene  
*University of Arkansas, Fayetteville*

Marcus A. Winters  
*University of Arkansas, Fayetteville*

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## An Evaluation of the Effects of D.C.'s Voucher Program on Public School Achievement and Racial Integration After One Year

Jay P. Greene, Ph.D.

*Endowed Chair and Head of the Department of Education Reform  
University of Arkansas  
Senior Fellow, Manhattan Institute for Policy Research*

Marcus A. Winters

*Senior Research Associate, Manhattan Institute for Policy Research  
Doctoral Academy Fellow, University of Arkansas*





## EXECUTIVE SUMMARY

This study evaluates the initial effect Washington D.C.'s Opportunity Scholarship Program (OPS) on the academic performance of public schools and its effects on the opportunities District students have to attend integrated schools. OPS is a federally sponsored school voucher program that provides vouchers worth up to \$7,500 for an estimated 1,800 to 2,000 students in the District of Columbia. Students can use the scholarships to pay tuition at participating private schools in the District. The pilot program is designed to last for 5 years.

The authors measure whether a public school's test score gains are related to its distance to the nearest voucher accepting private school or the number of voucher schools within a one mile radius of a public school. In theory, public schools with shorter distances to private schools or that have more private schools nearby should face greater competition from the voucher program than public schools with fewer educational alternatives.

The evaluation finds that the OPS has had no academic effect, positive or negative, on the District's public schools after its first year. This finding is different than most other studies, which tend to indicate school choice programs have helped to improve public school performance. The authors argue that a null finding could be explained by the fact that the OPS program was designed to have a minimal financial impact on public schools. They also suggest that the null finding could be explained by the small size of the program, the short time-span in which it has operated (1 year), methodological considerations, or a true lack of a relationship between vouchers and academic performance in Washington D.C.

The paper also compares rates of racial integration in D.C.'s public schools and private schools participating in the voucher program. The authors find that voucher accepting private schools have populations whose racial demographics more accurately mirror those of the surrounding metropolitan region than do public schools in the District. The study also finds that students using an Opportunity Scholarship are less likely to be enrolled in a school that is 90% or 95% racially homogeneous than are students attending Washington D.C. public schools. This finding, combined with a previous evaluation indicating that the vast majority of students participating in the OPS are African-American, suggests that OPS will likely lead to students leaving more segregated public schools for better integrated private schools.

This is part of the first year evaluation of the OPS program. The authors plan to continue evaluating the OPS program using a variety of approaches.

## ABOUT THE AUTHORS

**Jay P. Greene** is Endowed Chair and Head of the Department of Education Reform at the University of Arkansas, and a Senior Fellow at the Manhattan Institute. He has conducted evaluations of school choice and accountability programs in Florida, Charlotte, Milwaukee, Cleveland, and San Antonio. He has also recently published research on high school graduation rates, social promotion, and special education.

His research was cited four times in the Supreme Court's opinions in the landmark *Zelman v. Simmons-Harris* case on school vouchers. His articles have appeared in policy journals, such as *The Public Interest*, *City Journal*, and *Education Next*, in academic journals, such as the *Teachers College Record*, the *Georgetown Public Policy Review*, and the *British Journal of Political Science*, as well as in major newspapers, such as the *Wall Street Journal*, the *Washington Post*, and *USA Today*.

Greene received his B.A. in history from Tufts University in 1988 and his Ph.D. from the Government Department at Harvard University in 1995. He lives with his wife and three children in Fayetteville, Arkansas.

**Marcus A. Winters** is a Senior Research Associate at the Manhattan Institute, where he studies and writes on education policy. He is also a Doctoral Academy Fellow in the Department of Education Reform at the University of Arkansas. He has performed several studies on a variety of education policy issues including high-stakes testing, charter schools, and the effects of vouchers on the public school system. His op-ed articles have appeared in numerous newspapers, including the *Washington Post*, *USA Today*, and the *Chicago Sun-Times*. He received his B.A. in political science with departmental honors from Ohio University in 2002.

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## ABOUT EDUCATION WORKING PAPERS

A working paper is a common way for academic researchers to make the results of their studies available to others as early as possible. This allows other academics and the public to benefit from having the research available without unnecessary delay. Working papers are often submitted to peer-reviewed academic journals for later publication.

## TABLE OF CONTENTS

Previous Research and Theoretical Expectations on the Effect of Vouchers on Public School Academic Performance .....	1
Previous Research and Theory on the Effects of Vouchers on Racial Integration .....	3
Evaluating the Effect of Vouchers on D.C. Public Schools After One Year .....	5
Results and Discussion of the Effect of Voucher Competition on Public School Academic Performance .....	6
Evaluating the Potential Effects of Vouchers on Racial Integration .....	7
Results and Discussion of Evaluation of Racial Integration in Public and Voucher Schools .....	8
Conclusion .....	9
Endnotes .....	10
References .....	10
Appendix .....	12
Table 1: Effect of Voucher Competition on Public School Performance .....	12
Table 2: Measures of School Segregation .....	12
Figure 1: Percent Minority Enrollment in Deciles .....	13



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# AN EVALUATION OF THE EFFECTS OF D.C.'S VOUCHER PROGRAM ON PUBLIC SCHOOL ACHIEVEMENT AND RACIAL INTEGRATION AFTER ONE YEAR

In 2004, the United States Congress implemented the first federally sponsored school voucher program right in its own backyard. The DC School Choice Incentive Act provides vouchers worth up to \$7,500 for an estimated 1,800 to 2,000 students in the District of Columbia. Students can use the scholarships to pay tuition at participating private schools in the District. The pilot program is designed to last for five years.

The existence of this pilot program offers an important opportunity to learn more about the effects of expanded school choice on the performance of students who exercise choice, the performance of students who remain in traditional public schools, the opportunities for students to attend racially integrated schools, and other community effects. This paper focuses on the “systemic effects” of the program: its effects on the performance of students who remain in traditional public schools and its effects on opportunities for integration in school.

This paper examines the D.C. program after only a single year of implementation. Therefore, the study is limited in several ways, and later studies evaluating the effects of the program in years to come might have substantially different results. Nevertheless, it is important to follow the progress of this congressionally mandated program throughout its implementation in order to keep policymakers and the public up-to-date on its consequences.

## **Previous Research and Theoretical Expectations on the Effect of Vouchers on Public School Academic Performance**

Congress implemented the voucher program because of the near-universal understanding that the public schools in the District of Columbia are not living up to their expectations. As of the 2001–02 school year, the most recent year for which data are available from the National Center for Education Statistics, Washington, D.C., public schools spent \$15,489 per pupil—

substantially more than any other state<sup>1</sup> (the next-highest state was New Jersey, at just under \$13,000 per pupil). Despite such a high funding level, the District consistently ranks among the bottom of the nation in educational outcomes. For instance, on the 2005 administration of the National Assessment of Educational Progress, 58% of the District’s African-American students scored below the Basic benchmark on the eighth-grade reading test. The District’s performance was significantly worse than the already alarming national average of 49% of African-American students scoring below Basic.<sup>2</sup> A study by the Manhattan Institute found that the District’s performance ranked last in the nation on a previous administration of NAEP, even when the larger than average demographic and economic challenges of its students are taken into account (Greene and Forster 2004).

The District’s persistent poor academic outcomes have inspired a series of educational reforms. Washington, D.C., was one of many school systems to have implemented a high-stakes accountability testing program before the No Child Left Behind Act made them universal. The District has also experimented with school choice: as of the 2004–05 school year, there were 34 charter schools operating in the District of Columbia.<sup>3</sup>

The federally sponsored school voucher program is the latest attempt to provide students in Washington, D.C., with a higher-quality education. The theory behind the program is that parental choice in education should improve student learning, both for those who actively choose and for those who remain in traditional public schools. Whether that theory matches the experience with the program is the primary purpose of this evaluation.

Supporters of expanded school choice have argued that voucher programs not only help students who use the scholarships, but lead to significant improvements in the performance of nearby public schools

as well. The idea is that vouchers might provide public schools with an incentive to improve their performance by increasing market competition in education. When students have the financial power to leave public schools that are not serving them well, it may be harder for those schools to take students and the revenue that those students generate for granted. Public schools that improved their performance would be better able to retain or even attract students and revenue.

Opponents of expanded school choice argue that vouchers will harm public school performance by depriving them of important resources. In most voucher programs, when a student uses a voucher to leave a public school, that public school no longer receives the per-pupil funding that it previously received for educating the student. This loss of funding could leave already struggling schools with fewer resources, which in turn could cause them to fall further behind. And if voucher programs attract the most capable students and the most active families, public schools will lose these catalysts for improvement and positive peer influence, further hindering their ability to improve.

There is a wide and growing body of research on the effects that vouchers and other school choice programs have had on the academic performance of traditional public schools. Researchers have utilized a variety of strategies to study the systemic effects of existing school choice programs across the nation.

There have been four empirical evaluations of the effect of Florida's Opportunity Scholarship vouchers on low-performing public schools in the state. The statewide program provides tuition scholarships for students enrolled in public schools that earn two failing grades within a four-year period under the state's accountability system. Independent evaluations of the program by Greene and Winters (2004), Chakrabarti (2005), West and Peterson (2005), and Figlio and Rouse (2005) all found that the program has improved the performance of surrounding public schools. While Figlio and Rouse raised doubts about how much of the improved performance could be attributed to competitive pressure as opposed to a "stigma effect," the other three studies conducted additional analyses that led them to conclude that expanded choice and competition were largely responsible for the gains.

Researchers have also paid close attention to the public school effects of other publicly sponsored voucher programs. Hoxby (2001) and Greene and Forster (2002) found that Milwaukee's voucher program substantially improved the city's public schools. Looking at different stretches of time, both studies found that public schools exposed to greater competition from the voucher program, by virtue of having more of their students eligible to participate, made greater gains on achievement tests.

Hammons (2001) evaluated the impact of century-old voucher programs in Maine and Vermont, known locally as "tuitioning," in which some communities never built public high schools and instead offered families vouchers to pay tuition at private or other public schools. Hammons found that public high schools closer to tuitioning areas, and thus facing greater competition from nearby public and private schools in their efforts to attract tuitioning students, had significantly higher test-score performance than other public schools in those states.

Other research has focused on the effect of private school competition on public school performance more generally, without the use of school vouchers. Jepson (1999) and Sander (1999) each found no effect from general private school competition on public schools. However, Hoxby (1994) and Dee (1998) both found statistically significant and substantial positive effects from private schools on public school performance.

There exists a much larger body of research on the effects of school choice between public school districts on school performance. In theory, residential choice between school districts, often referred to as Tiebout choice, is greater where there are more public school districts operating within a reasonable proximity to one another. Where districts are more numerous, it is easier for parents to move from one district to another if they are dissatisfied with their current public school. This greater residential choice might lead to greater competition for students between school districts, which could improve public school performance in the same way that theory suggests vouchers could lead to improvements.

Most of the research on the effect of Tiebout choice on public school performance has produced distinctly positive results (see Borland and Howson

1993, Zanzig 1997, Hanushek and Rivkin 2002, Blair and Staley 1995, Greene 2002, Marlow 1997, Hoxby 2000, and Walberg 1993). There are some studies, however, that have produced more mixed findings (Borland and Howson 1992, 1995; Marlow 1999), but none of these findings was distinctly negative for the use of Tiebout choice.

In a survey of the existing research, Columbia University's Belfield and Levin (2002) concluded that the culmination of the research suggests that school choice likely has a modestly positive effect on the educational outcomes of public schools. While there is certainly room for more research on the effects of vouchers on public schools, so far the evidence tends to support the theory that public schools improve their performance in response to expanded choice and competition.

However, there are important differences between previous voucher programs and the DC School Choice Incentive Act that might lead to substantially different results. Only a limited number of children in the District are able to use the vouchers to leave their public school and attend a private school. By design, the pilot voucher program can only provide scholarships to an estimated 1,800 to 2,000 of the roughly 76,000 students in the D.C. public school system. The limited size of the program should reduce our expectations about the systemic effects of the D.C. voucher program, for good or for ill.

More significant, the D.C. choice program was specifically designed to hold the public school system financially harmless for the loss of students to the voucher program. Congress explicitly declared its intention that the choice program ought to have no negative financial impact on D.C. public schools, writing into the text of the law: "This title provides additional money for the District of Columbia public schools and therefore money for scholarships is not being taken out of money that would otherwise go to the District of Columbia public schools."<sup>4</sup>

Theoretically, holding the public school system financially harmless under the voucher program could severally limit any systemic effects of the policy, positive or negative. The theoretical benefit of school choice policies on public schools comes directly from the increased financial incentive that potentially losing enrollment funds provides. On the other hand,

theoretical concerns about how losing revenue would hinder school improvement would also be largely rendered moot if the system faced no loss of revenue from the program.

Even if all the financial repercussions of a voucher program are removed, however, it is possible that school choice might affect public school performance, either negatively or positively. For example, one could argue that even schools that are held harmless against the loss of revenue as they lose students to a voucher program might still feel increased pressure to improve in order to minimize the political embarrassment caused by an exodus of students. Schools might even anticipate that they would not be held harmless against financial losses forever and be motivated by that prospect of declining revenue in the future. Furthermore, when schools are held financially harmless for losing students, their per-pupil expenditures necessarily increase as the same number of dollars are used to educate fewer students. We might also expect their class sizes to decrease as students use vouchers, since the same dollars are available to hire the same number of students to educate fewer students. As long as these extra resources per pupil are used effectively—a strong assumption—we might expect a choice program in which schools lose students without losing money to improve the achievement of students.

On the other hand, the loss of enrollment even without the loss in their funds might demoralize their staff, resulting in decreased student performance. In addition, if only the best and brightest students with the most involved parents use the vouchers, school performance might suffer because lower-performing students will no longer have these exceptional students as role models, and schools will lose the support of their most valuable parental resources. Thus, while holding public schools financially harmless from the voucher program could significantly affect potential systemic responses to the program, the magnitude or direction of this bias is unclear without empirical evaluation.

### **Previous Research and Theory on the Effects of Vouchers on Racial Integration**

Another outcome of school vouchers considered by this paper is the effect they might have on the opportunities that students have to attend a racially

integrated school. Schools are expected to do more than convey academic skills. We also look to them to help in the development of future generations of citizens. The positive experience with people from different backgrounds resulting from racial integration is another important aspect of whether schools are serving public purposes.

In particular, expanding school choice raises concerns about this public purpose of education. Offering vouchers to attend racially segregated private academies was one of the strategies used by Southern segregationists to evade efforts to integrate public schools. This negative historical association alarms some that current voucher programs may be similarly motivated or have similar consequences. But it is also the case that public schools were segregated by law in much of the country for most of their history, so public schools also carry negative associations as far as segregation goes. In the end, we have to judge the effect of expanded school choice in school integration by its effects and not by its pedigree.

There are also some theoretical reasons to expect that expanding school choice ought to improve school integration. Most public schools assign students to schools based on where students live. By attaching schooling to housing, public schools may replicate and even reinforce racially segregated housing patterns. Vouchers may diminish this connection between racially segregated housing and racially segregated schools by making it easier for students to attend schools outside of their attendance zones or district. On the other hand, some may have theoretical expectations that expanding school choice would exacerbate segregation in schools by facilitating families to act upon racist inclinations and select schools that were even more racially segregated than the ones to which they were assigned.

There have been several studies comparing rates of racial segregation in public and private schools, much of which purports to find that private schools are more racially segregated than public schools. However, most of this research fails to properly define racial integration, leading to improper conclusions (Greene, 2005).

Some studies define greater integration as schools with larger numbers of minority students, others as

evenness in the distribution of students among schools within already segregated school districts. Some researchers have used levels of racial integration of public schools as the benchmark to measure the racial integration in schools of choice. Finally, researchers studying the effect of school choice programs, such as vouchers, have sometimes wrongly compared the demographic characteristics of those who participate in the programs with those who choose not to participate as an indication of the effects of the programs on school integration.

Each of the methods to measure racial integration described above fails to square with the common understanding of racial integration. If larger numbers of minority students were a proper indicator of greater racial integration, then African-American schools of the Jim Crow era were perfectly integrated. Evenly distributing racial populations among schools in a district is no achievement for racial integration if an all-black school district is geographically adjacent to an all-white school district. Each district could perfectly distribute its racially homogenous student population across the schools within its district and still fail utterly to offer an integrated school environment. Using public schools as a benchmark for perfect integration is also a flawed method, considering that it means by definition that there is no possibility for choice schools to be more racially integrated than the public schools against which they are being compared. And comparing the characteristics of those who choose to participate in school choice programs with those who choose to remain in their public school confuses differences in who participates with effects on integration. A magnet program that largely draws white students to attend predominantly African-American schools could enhance integration even if—or perhaps precisely because—it differentially attracted white students.

A more reasonable approach to measuring racial integration involves comparing the demographic characteristics of schools with those of their surrounding metro area. To the extent that schools contain a racial mix of students that more closely resembles the racial mix of students in the broader community from which they could reasonably draw students, given transportation constraints but ignoring political boundaries such as city or school-district line, the better integrated they are.

Another reasonable approach to measuring integration (or the lack of it—segregation) is to see how many schools are racially homogenous. For instance, a school with a population that is more than 90% minority cannot be considered to be racially integrated under any reasonable standard. If a large percentage of an area's schools are more than 90% homogeneous, we could reasonably consider those schools to be racially segregated.

Greene (1998) examined data from nationally representative samples of public and private school students collected by the U.S. Department of Education's National Educational Longitudinal Study. Greene found that twelfth-grade students in private school classrooms had racial compositions that were on average closer to national racial demographic characteristics than students in public school twelfth-grade classrooms. He also found that private school students were significantly less likely to be in classrooms that were more than 90% racially homogeneous than were their public school counterparts.

Ritter, Rush, and Rush (2002) replicated Greene's method but looked at racial segregation among kindergarten students rather than twelfth-graders. They found that private school kindergartens are more racially segregated than public school kindergartens. However, it is likely that twelfth-grade enrollments tell us more about racial segregation than information on kindergarten students. Unlike high school, full-day kindergarten is not offered in all communities, causing a significant number of wealthier, white students to enroll for kindergarten and switch to public school for first grade. This "bubble" in kindergarten enrollment could make an analysis of that grade unrepresentative of public and private schools more generally.

Research directly on the racial integration impact of vouchers in Milwaukee and Cleveland suggests that those programs contributed to greater opportunities for racial integration. Fuller and Greiveldinger (2002) found that Milwaukee's voucher program allowed participating students to attend more racially integrated private schools than could be found in their previous Milwaukee public schools. Greene (1999) found that 19% of students using a voucher to attend a private school in Cleveland went to a racially integrated school, compared with only 5% of students in Cleveland's public schools.

While researchers have not fully resolved their debates over the most appropriate methods for measuring school integration and while the evidence on the effects of vouchers on integration is far from definitive, the bulk of the research using reasonable methods suggests that expanded school choice contributes to higher levels of integration in school.

### **Evaluating the Effect of Vouchers on D.C. Public Schools After One Year**

Our strategy for measuring the effect of vouchers on public school achievement in Washington, D.C., is to use different measures of the physical proximity of public schools to private schools participating in the voucher program as a proxy for the competition faced by those public schools. In theory, schools that are geographically closer to competing private schools, or that have a larger number of competing private schools within a given radius, will be more likely to lose students to the voucher program than schools whose students have fewer private school options nearby.

Using multivariate regression techniques, we tried to identify the relationship between these measures of voucher competition and the achievement of students in D.C. public schools. Each year, students in D.C. public schools are administered the Stanford-9 math and reading tests in grades three, five, eight, and ten. We collected aggregate school level mean scaled scores on these tests for each public school in the District for the 2003–04 and 2004–05 school years—the year before and the first year after implementation of the voucher program—using the District of Columbia Public Schools official website.<sup>5</sup> We then calculated the gains that each school made during this one-year period.

We obtained the geographical address of every public school in Washington, D.C., from the Core of Common Data, made available by the U.S. Department of Education.<sup>6</sup> We also obtained the geographical address of each private school that is participating in the voucher program.<sup>7</sup> Using a commercial mapping software package, we then measured the distance between each public school and the nearest private school participating in the voucher program that served students in the same grade levels.<sup>8</sup> As an alternative measure of

competition, we also counted the number of participating private schools within a one-mile radius of each public school.

On average, D.C. public schools were located 0.68 miles from the nearest competing private school, with a minimum distance of 0.06 miles and a maximum distance of 3.43 miles. The average District public school also had 2.33 competing voucher schools within a one-mile radius, with a minimum of zero and a maximum of eight schools. Of the 151 public schools in Washington, D.C., that serve grades that are administered the Stanford-9 and for which we have complete test-score information, there were 27 public schools that have no competing voucher schools within a one-mile radius.<sup>9</sup>

To account for demographic characteristics that could affect test-score performance, we also obtained information on the percentage of students in each school who are white and the percentage of students enrolled in the free or reduced-price lunch program during the 2003–04 school year.<sup>10</sup> In our analyses, we also controlled for each school's baseline test-score level in the subject and grade being evaluated. Unfortunately, we were unable to control for the change in these demographic characteristics because the information available from the U.S. Department of Education lags by at least one year.

We performed a series of Ordinary Least Squares regressions to measure the impact of geographical location to voucher-participating private schools on public school achievement. We performed independent regressions for each strategy for measuring competition, grade, and subject tested—for example, one regression for the effect of competition on fifth-grade reading-test-score gains using the distance to the nearest voucher school as the measure of competition and another regression for the effect of competition on eighth-grade reading-test-score gains using the number of voucher schools within one mile as the measure of competition, and so on. In total, we performed 16 OLS analyses (two strategies for measuring competition, two subjects in each of four grades). In each evaluation, the dependent variable was the test-score gain that a school made in a grade and subject of interest on the Stanford-9 between 2003–04 and 2004–05.

## Results and Discussion of the Effect of Voucher Competition on Public School Academic Performance

The results of our evaluations suggest that after one year, the voucher program has had no significant impact on the D.C. public schools, positive or negative. None of our 16 regression analyses produces a statistically significant finding for the chosen measure of voucher competition—either distance to the nearest participating voucher school or the number of competing voucher schools within a one-mile radius (see Table 1).

There are several factors that could explain the null finding of our evaluation. First, it is possible that one year is not long enough for voucher competition to have any positive or negative effect on public schools. Most previous evaluations finding positive impacts from other voucher programs were conducted at least a few years after the programs were implemented. With time, it is possible that D.C.'s voucher program will lead to improvements or deterioration in the quality of public schools.

The null finding could also be explained by necessary limitations in this study's empirical design. While using proximity to competing schools to measure competitive pressure has proven a workable design in previous school choice systemic-effect studies (see, for example, Greene and Forster 2002 and Hoxby 2001), this might not be the best measure of competition for a metropolis such as Washington, D.C. Public transportation is abundant in the District of Columbia, which could make mileage differences between schools quite manageable for parents. Thus, public schools in the District might not face measurably less competitive pressure from a voucher school five miles away compared with a voucher school only a half-mile away.

Some might argue that our null finding occurs because we fail to measure any systemic academic effect that the District's many charter schools might have had on public schools. As mentioned earlier, there are numerous charter schools in the District, each of which theoretically should have a similar competitive effect as the one that we are evaluating from vouchers. However, the purpose of this study is to evaluate any *additional* systemic academic effect that vouchers might have on public school performance, compared with

the status quo. Thus, including any charter school effect would be unnecessary in our analysis because charter schools are already part of the academic environment. Similarly, we do not account for the most widely used form of school choice—that is, locating one's residence in the desired school district or attendance zone—because such residential school choice operates with or without the implementation of vouchers.

Aside from methodological considerations, there are also theoretical reasons that we might expect a null finding for systemic effects in D.C. Most important, as discussed previously in this paper, the School Choice Incentive Act was designed so that the public school system would not be adversely affected financially from the program. Proponents as well as opponents of vouchers cite decreasing revenues as the driving force for the academic effect that vouchers would have on public schools. Other voucher programs where research has found an academic effect from vouchers on public schools have usually tied substantial resources to the loss of students from vouchers. It is reasonable to argue that the lack of this financial aspect of the program is the most likely cause of our null finding.

Of course, it is also possible that our null finding is caused by a true absence of any significant effect of expanded school choice on public school performance. Further analyses over time using a variety of approaches—in D.C. and elsewhere—may help resolve these uncertainties about the real relationship between vouchers and student achievement in public schools.

It is important to emphasize that the results of this analysis find that the voucher program has neither helped nor harmed D.C. public school academic achievement after one year. Thus, at least after its first year, the School Choice Incentive vouchers have neither helped to improve public schools in the District, as advocates suggested, nor harmed those schools, as opponents suggested.

### **Evaluating the Potential Effects of Racial Integration**

This paper evaluates whether the Opportunity Scholarship Program has increased the opportunity for students to attend less segregated schools. We utilize two strategies to measure racial segregation.

We first measure the extent to which each school's racial composition differs from the racial composition of the school-age population in the surrounding metropolitan population, as defined by the United States Census. The greater absolute value of the difference between a school's demographic characteristics and the demographic characteristics of the surrounding metro area, the more racially segregated the school. We then computed the weighted average difference for D.C. public schools and private schools participating in the program to see which sector was more likely to offer students a racially integrated school environment.

Another approach to analyzing racial segregation was to compare the percentage of public and voucher-participating private schools with enrollments that are greater than 90% or 95% racially homogeneous. This evaluation sheds light on the percentage of schools that have student populations that simply cannot be considered to be racially integrated under any reasonable standard, regardless of the surrounding population.

To evaluate the impact of the D.C. voucher program on opportunities for racial integration, we collected information on the racial composition of each public school and each private school participating in the voucher program. For public schools, we acquired data using the Core of Common Data.<sup>11</sup> For voucher-participating private schools, we utilized a dataset made available by the Washington Scholarship Program.<sup>12</sup> These datasets provided information on the number of students who were nonwhite in each school, which we converted into percentages.<sup>13</sup> Thus, all our analyses focus on integration between white and minority students and do not offer information about integration between different minority groups.

To compare public schools and the surrounding metro population, we utilized data from the U.S. Census. We downloaded information on the racial characteristics of the school-age population (aged 5–18) in the Washington, D.C./Virginia/Maryland Urbanized Area as defined by the census. This is the population from which area schools could reasonably draw students.<sup>14</sup>

We used census data to calculate the percentage of the metro area's school-age population that was nonwhite. Comparing white and nonwhite popu-

lation instead of breaking out each racial category was the only analysis possible, given publicly available data on the private schools participating in the voucher program. While other analyses might have been informative, restricting our focus to white/nonwhite integration is reasonable because it coincides with the general public's primary concern with racial segregation.

For each public and private school, we then calculated the absolute value of the difference between its nonwhite population and the surrounding metro area's nonwhite population. Next, we took the average difference between the nonwhite school and area populations in the District, weighted for each school's enrollment. Failing to account for each school's enrollment size would give unnecessary weight to the percentage of students who are nonwhite in schools with particularly small enrollment populations.

We also created two sets of dummy variables for each school: one indicating whether 90% of its student population was either white or nonwhite; and another indicating whether 95% of its student population was either white or nonwhite. We then calculated the percentage of schools that had enrollments that were racially homogeneous by these definitions. We again weighted the analysis to account for the size of each school's enrollment.

### **Results and Discussion of Evaluation of Racial Integration in Public and Voucher Schools**

Table 2 reports our findings. According to the United States Census data we collected, the population of the Washington, D.C., metro area is 57.1% nonwhite. The absolute value of the difference between the nonwhite school-age population in the metro area and the weighted average nonwhite population in the school was 39.5% for public schools in Washington, D.C., and 33.8% among voucher-participating private schools. The smaller difference for private schools indicates that private schools on average have a racial composition that more closely approximates the racial composition of the broader community in which they are located. Neither sector is wonderfully integrated, but the voucher schools were somewhat less segregated.

Table 2 also shows that a weighted average 85.4% of the District's public schools have student populations

that are at least 90% racially homogeneous, and 84.4% of them have student populations that are at least 95% homogeneous. Among private schools participating in D.C.'s voucher program, however, a weighted average of about 47.3% have student populations that are at least 90% racially homogeneous, and about 42.8% are 95% or more racially homogeneous.

Figure 1 illustrates the distribution of DC public and participating voucher school students by the mix of white and non-white students in their schools. Of all students attending public schools in the district, 85.1% are enrolled in schools that are at least 91% non-white compared to 42.8% of students attending participating private schools. No students in district public schools attend schools that are between 0 and 10% non-white compared to 4.5% of private schools. The figure provides information for each decile, showing that very few DC public school students attend schools that approximate the 57.1% non-white average in the metro area, while private school students are somewhat more likely to be enrolled in schools with a representative racial mix.

The results of our analysis indicate that the Choice Incentive Act vouchers offer the opportunity for students to leave more segregated public schools for less segregated private schools accepting vouchers. That is, voucher-accepting private schools have racial populations that better resemble the racial composition of the surrounding metro area and are less likely to have student populations that are racially homogeneous.

This analysis is unable to measure the actual direct impact that the Opportunity Scholarship Program has had on racial integration in Washington, D.C. Such an evaluation would require individual level data on students who use vouchers and which schools they attend, which has not been made publicly available.

However, we can make some reasonable inferences about the effect of the program on racial integration from our results. Of those students who used a voucher to attend a private school, 94% are African American (Wolf et al., 2005). When we consider that the vast majority of students using the vouchers are nonwhite and that private schools are more racially integrated than the public schools that these chil-

dren are leaving by having lower concentrations of African-American students, it is clear that the program is likely reducing racial segregation in schooling. Nonetheless, further empirical evidence utilizing individual level enrollment data from the voucher program could substantially add to our knowledge of the program's effect on racial integration in the District.

It is important to emphasize that, on average, neither public schools nor private schools in D.C. appear to have achieved what most people would consider racial integration. However, the question before us is whether the voucher program contributes to opportunities for integration. Our analysis indicates that, since public schools are more racially segregated than private schools in the area, the D.C. voucher program will allow students the opportunity to leave more racially homogeneous schools for less segregated schools, which should lead to lower rates of segregation for both groups. Future research will be necessary to explore the dynamic effects of

the voucher program on the level of racial integration offered in each sector.

### **Conclusion**

This paper is the beginning of a long-term analysis of the effects of the Choice Incentive Act voucher program on public school achievement and on racial integration. After one year, we find that the program has likely improved racial integration in the area's schools but that it has had no significant effect on public school performance.

While these findings are meaningful to gauge the effectiveness of the program so far, it is important to keep our results in context of the long-term evaluation to which they belong and the broader research literature to which they add. It is possible that the true effects of the program will substantially change in time. As with all public policies, it is the long-term effects of this and other voucher programs that are the most meaningful for their futures.

## ENDNOTES

1. National Center for Education Statistics, *Digest of Education Statistics 2004*, Table 165.
2. National Assessment of Educational Progress, NAEP Data Tool, <http://nces.ed.gov/nationsreportcard>.
3. Data compiled from the Build a Table option made available by the National Center for Education Statistics, Core of Common Data.
4. Title III—DC Choice Incentive Act of 2003, Sec. 302 (6). Text available online at [http://www.schoolchoiceinfo.org/data/facts/DC\\_Choice.pdf](http://www.schoolchoiceinfo.org/data/facts/DC_Choice.pdf).
5. <http://silicon.k12.dc.us/apds/APDSSummaryReports.asp>.
6. National Center for Education Statistics, Core of Common Data. For this study, the authors utilized the Build a Table option of the Core of Common Data (<http://nces.ed.gov/ccd/bat>).
7. "School Directory, D.C. Opportunity Scholarship Program, 2004–05 School Year," Washington Scholarship Program, June 2005.
8. The software used for this study was Street Atlas USA, 2004, from Delorme.
9. There were a total of 170 public schools in the dataset downloaded from the Core of Common Data, but we only have information on voucher competition for 151 schools. The reason for is that 14 were listed as "ungraded," three schools served only pre-K and kindergarten, and we were unable to match test scores for two of the schools using data from the D.C. Department of Education website.
10. National Center for Education Statistics, Core of Common Data.
11. Ibid.
12. "School Directory, D.C. Opportunity Scholarship Program, 2004–05 School Year," Washington Scholarship Program, June 2005.
13. For the purposes of this paper, "white" refers to non-Hispanic whites.
14. United States Census, American Fact Finder,

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## APPENDIX

**Table 1: Effect of Voucher Competition on Public School Performance**

	MATH		READING	
	Distance to Nearest Voucher School with Same Grade Level*	Number of Voucher Schools with Same Grade Level Within One-Mile Radius	Distance to Nearest Voucher School with Same Grade Level*	Number of Voucher Schools with Same Grade Level Within One-Mile Radius
<i>Grade 3</i>				
Unstandardized Coefficient	-0.456	-0.344	-0.772	-0.45
Standard Error	4.59	1.05	4.232	0.965
N	104	104	103	103
<i>Grade 5</i>				
Unstandardized Coefficient	-0.655	1.186	1.95	0.172
Standard Error	3.285	0.746	2.865	0.668
N	103	103	103	103
<i>Grade 8</i>				
Unstandardized Coefficient	-3.982	0.905	-5.587	1.545
Standard Error	2.45	0.655	4.717	1.244
N	26	26	26	26
<i>Grade 10</i>				
Unstandardized Coefficient	-0.177	-1.591	0.019	3.579
Standard Error	2.611	2.704	2.592	2.682
N	19	19	19	19

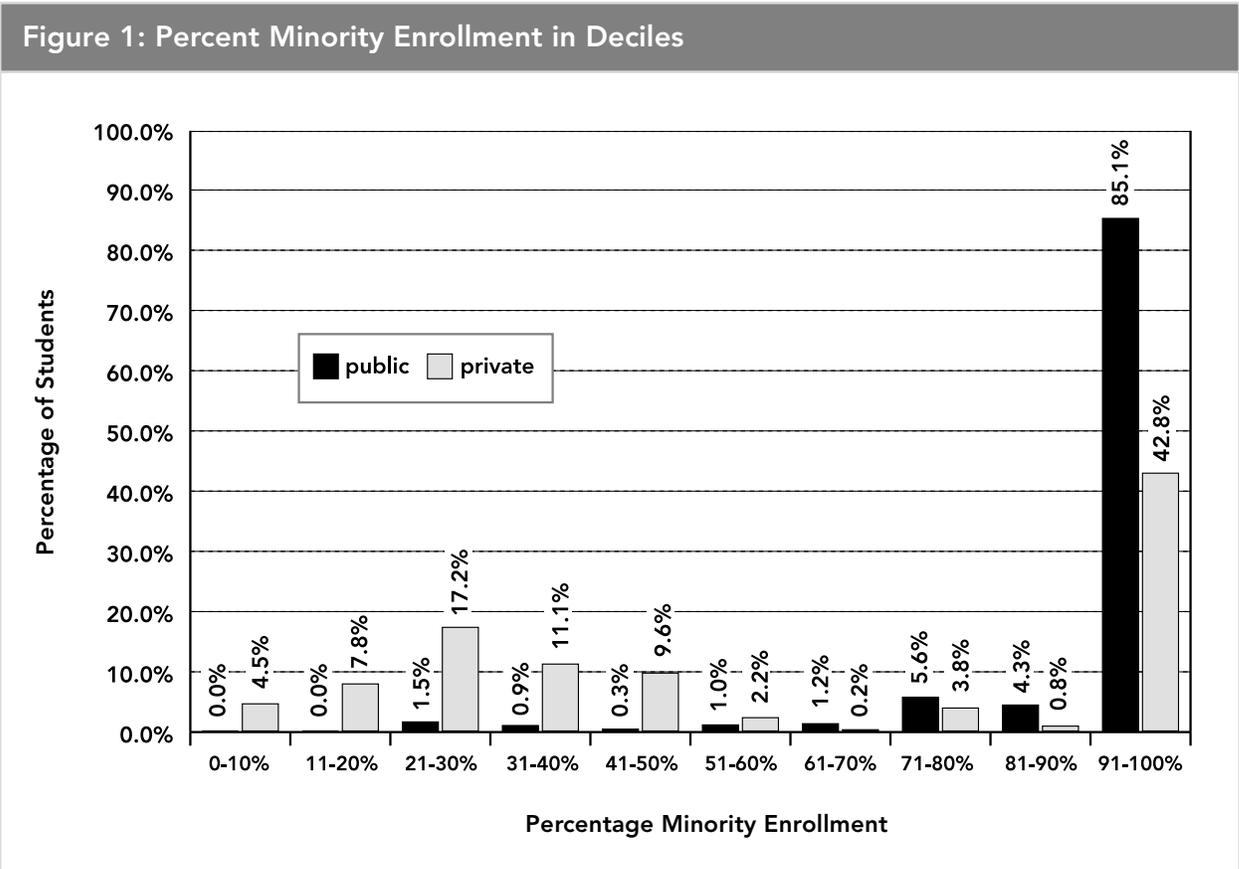
(controlling for percentage of students who are white, percentage of students enrolled in the free or reduced-price lunch program, and baseline 2004 test score in same grade and subject)

\*In the distance analyses, a negative coefficient indicates that public schools nearer to the closest voucher school make the largest gains. Thus, a negative coefficient is most consistent with the hypothesis that voucher competition has improved public school performance in Washington, D.C.

**Table 2: Measures of School Segregation**

	D.C. Public Schools	Voucher Schools
Difference in Percent Minority from Ideal Integration	39.5%	33.8%
Percent of Schools 90% Homogeneous or More	85.4%	47.3%
Percent of Schools 95% Homogeneous or More	84.4%	42.8%
N	169	52

Figure 1: Percent Minority Enrollment in Deciles



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