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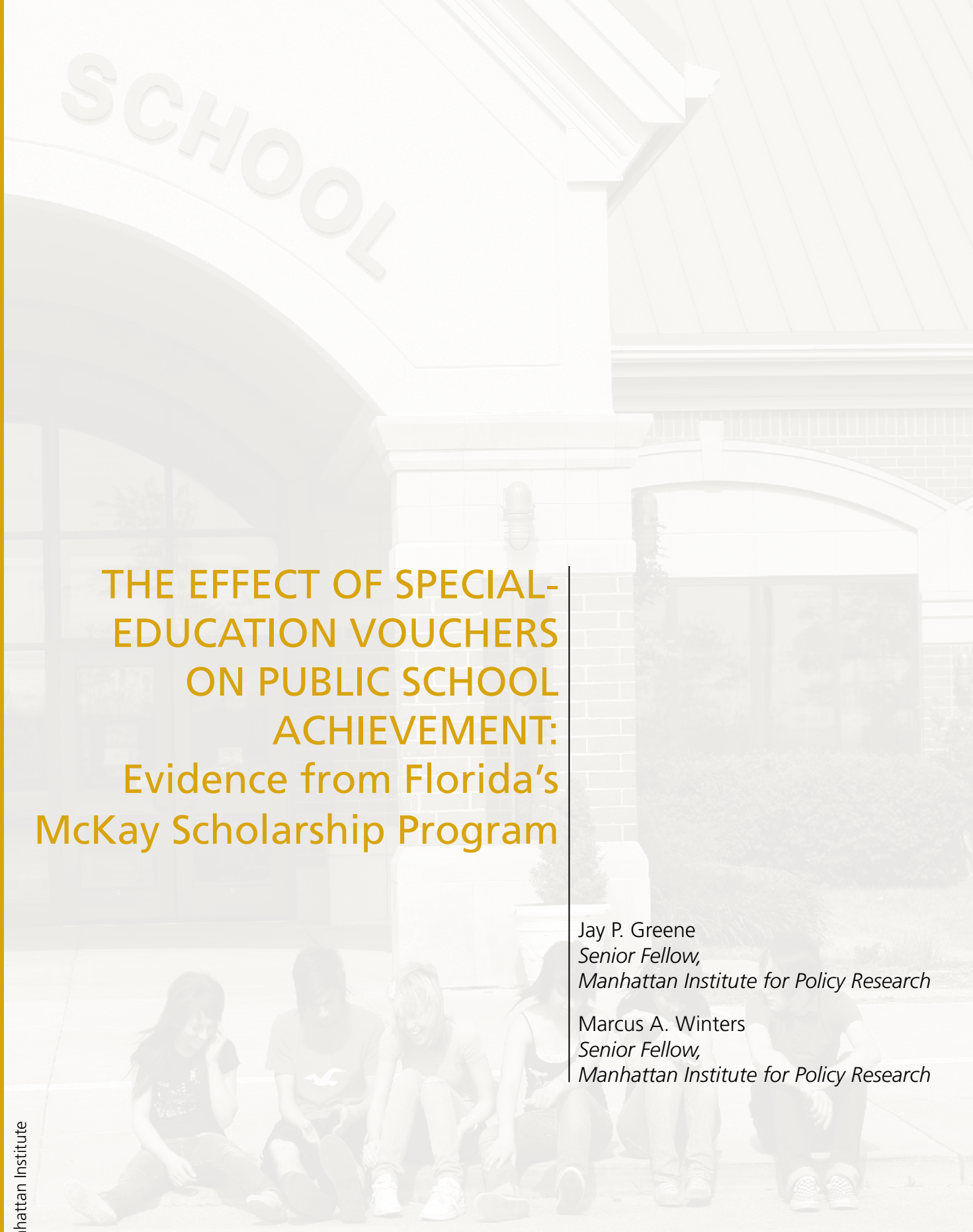

THE EFFECT OF SPECIAL-EDUCATION VOUCHERS ON PUBLIC SCHOOL ACHIEVEMENT: Evidence from Florida's McKay Scholarship Program

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Executive Summary

This paper evaluates the impact of exposure to a voucher program for disabled students in Florida on the academic performance of disabled students who remain in the public school system. The authors utilize student-level data on the universe of public school students in the state of Florida from 2000-01 through 2004-05 to study the effect of the largest school voucher program in the United States, the McKay Scholarship Program for Students with Disabilities (McKay), on achievement in math and reading by students who have been diagnosed as disabled and remain in the public school system.

This paper is the first empirical evaluation of the impact of exposure to a voucher program designed to allow students with disabilities to enroll in schools other than their local public schools on the achievement of disabled students who remain in their local public schools. Vouchers for disabled students are the fastest-growing type in the United States. Programs similar to McKay are currently operating in Ohio, Georgia, and Utah and have been recently considered by other states.

Highlights of the study include:

- Public school students with relatively mild disabilities made statistically significant test score improvements in both math and reading as more nearby private schools began participation in the McKay program. That is, contrary to the hypothesis that school choice harms students who remain in public schools, this study finds that students eligible for vouchers who remained in the public schools made greater academic improvements as their school choices increased.

- Disabled public school students' largest gains as exposure to McKay increased were made by those diagnosed as having the mildest learning disabilities. The largest category of students enjoying the greatest gains, known as Specific Learning Disability, accounts for 61.2% of disabled students and 8.5% of all students in Florida.

- The academic proficiency of students diagnosed with relatively severe disabilities was neither helped nor harmed by increased exposure to the McKay program.

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 conducts research and writes about topics such as school choice, high school graduation rates, accountability, and special education.

Dr. Greene's 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 Georgetown Public Policy Review*, *Education and Urban Society*, and *The British Journal of Political Science*; as well as in newspapers such as the *Wall Street Journal* and the *Washington Post*. He is the author of *Education Myths* (Rowman & Littlefield, 2005).

Dr. Greene has been a professor of government at the University of Texas at Austin and the University of Houston. He received a B.A. in history from Tufts University in 1988 and a Ph.D. from the Department of Government at Harvard University in 1995. He lives with his wife and three children in Fayetteville, Arkansas.

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Jay P. Greene & Marcus A. Winters

I. INTRODUCTION

School-choice policies have played an important role in the education policy debate over the last two decades. Currently, 21 school-voucher programs in 14 states provide taxpayer-funded scholarships to attend a private school (Enlow 2008). More than half of all states currently allow students to enroll in government-funded charter schools that operate outside of many of the rules and regulations of the public school system and do not have mandated catchment zones that determine who may enroll in them.

Over the last few years, voucher programs for students with disabilities have been among the fastest-growing choice policies. In 1998, Florida's McKay Scholarship Program for Students with Disabilities (McKay) became the first of its kind to offer generous taxpayer-funded vouchers that students identified as disabled can use to attend a private school or a public school other than their local one. From the time it was first implemented statewide, in 2000–01, to the 2006–07 school year, McKay has grown from serving 970 students in 100 private schools to serving 18,273 students in 811 private schools, making it the largest school-choice program in the United States.

Other states have recently followed Florida's lead by offering voucher programs similar to McKay for disabled students. Special-education voucher programs are currently operating in Ohio,

Utah, Georgia, and Arizona. According to the Alliance for School Choice, bills to implement or expand a special-education voucher program have also passed one or both houses of the Nevada, Wisconsin, and Virginia legislatures.

The substantial growth of school-choice policies in the United States has created great demand for research evaluating the impact of these programs. Though we are interested in the impact of choice programs on those students who use them, it may be more important that we understand the effect of these policies on those students who remain in the public school system, largely because zoned public schools will continue to educate the vast majority of students in the United States for the foreseeable future.

This paper is not the first to evaluate the impact of exposure to school-choice policies on the academic performance of students who remain in the public school system. However, it is the first (of which we are aware) to provide evidence of the impact of a program aimed exclusively at disabled students on the academic achievement of those disabled students who remain in local public schools.

There are two general schools of thought concerning the impact of school-choice policies on all types of students who remain in the public school system. The first school of thought is that school-choice programs decrease public school performance by draining public schools of substantial financial and human resources. As students leave local public schools for alternatives, they take with them a large portion of the funding that the school would have received for their education. Such losses are likely to harm students' academic proficiency.

Additionally, it is often assumed that the best and brightest within any particular pool of voucher-eligible students are more likely to take advantage of voucher programs. Several theoretical models suggest that removing these students from public schools would tend to stunt the academic growth of students remaining in the public schools as the result of a so-called dilution of peer effects (Epple and Romano 1998, 2002; Nechyba 1999, 2000; Caucutt 2001). That is, a particular student's proficiency is partly determined by the proficiency of his fellow students—perhaps because such students provide positive role models, stimulate classroom discussion, and so on. Thus, as the overall quality of students within a local public school deteriorates, so might the academic progress of any of its individual students.

It could be argued, however, that losing students to school-choice programs would actually increase the ability of public schools to elevate student achievement. If, as many teacher groups and public school advocates claim in debates unrelated to school choice, the true cost of educating a student is greater than the resources that a school receives to educate him and if funding is largely allocated on a per-capita basis, then losing students to school-choice programs could mean more resources available for the students who remain. A further benefit could be that as public school enrollment drops as the result of school-choice policies, so might class size.

Such resource arguments apply with special force to special education. It is frequently argued that special-education programs are uniformly underfunded and that the large increase in the percentage of students who are disabled has been a substantial burden on local public schools. If the cost of educating disabled students truly exceeds the funding provided, then removing a portion of these students from local public schools would tend to increase the resources available on a per-capita basis.

The second school of thought about these so-called systemic effects holds that school-choice policies might actually improve the performance of local public schools even as, and precisely because, such policies reduce their resources (Nechyba 2003). Many of those in favor of school-choice policies argue that the current system, in which students are assigned to schools on the basis of their address, provides those schools with a captive clientele it feels little pressure to truly educate. This weakness is especially pronounced when students lack the means to move to another school zone or attend a private alternative. Special-education students, in particular, might suffer under this system if private schools are hesitant to admit them because

they are more difficult to educate. Under this theory, school-choice policies create a market for educational services in which local public schools must begin to compete for their students and the resources that they draw upon by offering an educational product of equal quality to the alternative that the voucher makes available.

Several studies have evaluated the relationship between exposure to school-choice policies and public school performance. Utilizing slightly different methods, Greene and Winters (2004), Chakrabarti (2005), Figlio and Rouse (2006), West and Peterson (2006), and Greene (2001) each found that competition from a voucher program in Florida (a different program from the one evaluated in this paper) led to public school gains on math and reading tests. Hoxby (2001) found that public schools improved their performance in response to competition from charter schools.

In a related literature, a growing body of empirical research measures the impact of greater exposure to schooling options on public school students' academic outcomes. Hoxby (2000), Bayer and McMillan (2005), and Hanushek and Rivkin (2003) find evidence that greater competition among public school districts, often referred to as Tiebout choice, leads to improved public school performance, though McHugh (2003) finds less evidence of this effect. Hoxby (1994) and Dee (1998) find positive effects from unsubsidized private school competition, while Sander (1999) and McMillan (2004) fail to find such an effect.

Unfortunately, to date there is no quantitative research evaluating the impact on the performance of public schools of disabled students' exposure to school-choice programs. This paper begins to fill this void in the literature.

Focusing on a program directed at disabled students may be interesting for a variety of reasons. First, as discussed above, such policies represent substantial growth in general in U.S. voucher programs over the last few years.

Focusing on the impact of a special-education voucher program is also worthwhile because a frequent criticism of voucher programs has been that private schools will not accept students with disabilities because they are difficult to educate and, if enrolled, would decrease the average ability level of their student body and thus their competitive advantage (Epple and Romano 1998, 2002; Nechyba 1999, 2000; Caucutt 2001; Cullen and Rivkin 2003). This suggests that not only highly selective private schools may refrain from accepting disabled students, but also the more numerous urban private schools that educate seriously disadvantaged populations. If private schools are unwilling to accept even those disabled students whose tuition is paid, the McKay program should have little, if any, competitive effect on the performance of public schools.

A final feature of the McKay program that makes it of particular interest to study is the size of both its eligible and participating populations. An important criticism of previous school-choice research is that their focus on small programs may not have produced findings that would remain valid as these programs grew in scale. For example, in 2006–07, students in only 21 Florida public schools were eligible to receive a voucher from the oft-studied Opportunity Scholarship Program (Greene and Winters 2004; Chakrabarti 2005; Figlio and Rouse 2006; West and Peterson 2006). In contrast, in 2005–06, about 15 percent of all disabled public school students in Florida were eligible to receive a McKay voucher.[1]

This paper utilizes a data set provided by the Florida Department of Education to study the impact of increased exposure to the McKay program on the proficiency of disabled students who remained in local Florida public schools. This data set allows us to follow the performance of each individual student enrolled in grades three through ten in a Florida public school from the 2000–01 to the 2004–05 school years. Our ability to track the performance of individual students over time (known as panel data) substantially improves the accuracy of our estimates by allowing us to directly control for unobservable factors that play important roles in a student's academic progress.

Further, this rich data set enables us to disaggregate the impact of exposure to McKay on students with varying degrees of disability. As we will discuss below, the ability to classify students on the basis of their particular

disability allows us to better control statistically for the impact of students' disability on their academic proficiency. There is some reason to expect that students with different degrees of disability have more or fewer private school options under the McKay program. If it is the case that students with minor disabilities are better able to acquire a seat in a private school, then we should expect that the McKay program had a differential impact on the proficiency of students who remain in the regular public school system.

Though more research is necessary, the findings in this paper suggest that greater exposure to the McKay program increased the ability of public schools in Florida to produce educational gains for disabled students. Our results also suggest that the impact of exposure to McKay was greatest among students with minor disabilities—in particular, those in the category Specific Learning Disability, which is by far the largest special-education category in Florida and in the United States. Moreover, in no subgroup within special education was student proficiency harmed, on average, by increased exposure to the McKay program.

However, the nature of the analysis here does not help to discover the exact reasons for such improvement. These findings could be caused by reallocations to remaining students of funds made available by the departures of voucher recipients; or by schools responding to additional competition resulting from the advent of a market for students; or by some other factor not yet discussed in the literature. Future "inside the black box" research is necessary to distinguish the root causes of the improvements in student proficiency resulting from exposure to the McKay program. Nonetheless, the findings of this paper tend to support the use of voucher programs for disabled students.

The remainder of this paper is divided into five additional sections. Section 2 briefly describes the McKay program evaluated here and its growth over the last several years. Section 3 provides a description of our rich longitudinal data set. We discuss the empirical approach of the paper in Section 4, and Section 5 reports the results of our estimations. Finally, Section 6 summarizes our findings and provides a general discussion of their implications for the discussion of school-choice policies.

2. THE MCKAY SCHOLARSHIP PROGRAM

The John M. McKay Scholarship Program for Students with Disabilities is a statewide program in Florida designed to provide disabled students with the resources to attend either a public school different from the one that their place of residence would otherwise dictate or a private school that accepted them. McKay scholarships are available to any Florida public school student who: 1) has been assigned an Individual Education Plan (IEP)—essentially a judicially enforceable contract between the school system and every student diagnosed with a disability that specifies the services that the school system is to provide; and 2) was enrolled in the Florida public school system during the previous year. Once a student uses a McKay voucher, he remains eligible for the program for as long as he remains in private school or until he turns 22 years of age.

For private schools to participate in the program, they must meet safety requirements and employ teachers with at least a bachelor's degree. Unlike many other school-voucher programs, McKay does not require private schools to accept the sum that the voucher represents as full tuition payment.

Importantly for our purposes, the McKay program has undergone dramatic growth since it was first implemented as a small pilot in the 1999–2000 school year. Table 1 reports some basic statistics about the program for each year of its existence. Between 2000 and 2001, when the program was adopted statewide, and 2006 and 2007, the number of students using a McKay scholarship increased from 970 to 18,273, making it the largest school-voucher program of any kind in the nation.[2] The increase in the number of students is in large part due to the increase, from 100 to 811, in the number of private schools in that period willing to accept the voucher.

McKay is distinguishable from other voucher programs not only by the size of its eligible population but also by the generosity of its grants. Every eligible student is provided with a voucher that is equivalent in value to the sum that his original public school would spend on him if he did not use it or the tuition charged by

the accepting private school, whichever is smaller. This means that students with more severe disabilities have the chance of receiving a larger voucher amount than students with milder disabilities because the former are more expensive to educate. According to the Florida Department of Education, in 2006–07 McKay scholarships ranged in value from $5,039 to $21,907, with an average of $7,206.[3]

3. DATA

We utilize information from a rich data set provided by the Florida Department of Education. This data set contains student-level information for the universe of public school students who were enrolled in grades three through ten in the Florida public school system from the 2000–01 to the 2004–05 school year. For each student-year, the data set comprises demographic information and the child's score on the math and reading versions of the Florida Comprehensive Assessment Test (FCAT)—a standardized test administered to all students in grades three through ten. If the student is disabled, the data set reports the student's disability classification. Importantly for estimation purposes, the data set includes an identification number for each student that allows us to follow his performance over time.

The data set includes information on only those students who were enrolled in public school during the time period covered. Because private school students, including those who utilize McKay scholarships, are not required to take the state's standardized exams, we have no information on their performance after they leave public school and thus no basis for evaluating McKay's impact on them.[4]

Table 1. Summary Characteristics of McKay Program

	Voucher-Using Students	Voucher-Accepting Private Schools
2006-07	18,273	811
2005-06	17,300	751
2004-05	15,910	708
2003-04	13,739	687
2002-03	9,130	518
2001-02	5,013	296
2000-01	970	100
1999-00	2	1

Consequently, our expansive data set can be used to evaluate the impact of public school exposure to the McKay program on the proficiency of only disabled students within those public schools. "Exposure" to the program refers to the existence and pervasiveness of schooling alternatives reasonably available to students assigned to a particular public school on the basis of their home address. This definition of exposure does not depend on students' using a voucher to leave a particular public school for a private alternative—though the number of private alternatives nearby and the number of students leaving public schools with a McKay voucher are almost certainly related—and we do not directly control for such attrition. Instead, we are interested in identifying to the best of our ability how many feasible options were available to students enrolled in a particular public school, since a larger number of alternatives provides students with more of an opportunity to take advantage of the voucher program.

We adopt the strategy of some previous studies of the systemic effect of school-choice policies and utilize the number of private schools willing to accept a McKay voucher within a reasonable geographic radius of a public school as the measure of a school's exposure to the program. Students could theoretically utilize a McKay voucher at any school in the state willing to enroll them; but as a practical matter, geography can limit a student's ability to attend private school. It can therefore limit the exposure to McKay that a public school faces. It should come as no surprise that public schools with a number of private schools nearby that are willing to accept McKay vouchers are disproportionately likely to lose their students to the program, while public schools surrounded by few, if any, such schools are essentially unaffected by the program. We can thus use the number of private alternatives within a particular radius of a public school as a proxy for, or measure of, the exposure that that school faces from the program.

For each year in our data set, we used geographical software to locate every public school and every private school that had registered with the state as willing to accept a McKay voucher. We then counted separately, for each of the years in the data set, the number of private schools within five miles of a given public school accepting McKay vouchers, and then the number of such schools within ten miles of each public school.[5] Using a unique school identifier in the student-level data set, we then determined the number of private alternatives available to each student within these two distances from his local public school during each year covered by our data. Table 2 reports descriptive statistics by year on the number of McKay-accepting private schools within a five- and a ten-mile radius of local public schools that students in our data set would, in the absence of alternatives, attend.

An important feature of our data set is that it establishes not only the fact of a student's disability but also its nature. Federal law specifies the disability diagnoses meriting an IEP. Table 3 lists the categories authorized by the Florida Department of Education and reports the percentage of all students as well as all disabled students in the state who fell within each category during the 1999–2000 school year, the year before the McKay program was adopted statewide. These categories include blindness and deafness and range in severity from the relatively mild Specific Learning Disability (SLD) to Traumatic Brain Injury (TBI), a severe disability. In Florida and around the nation, by far the largest category is SLD, accounting in Florida for 61.2 percent of disabled students and 8.5 percent of all students.

One reason that the identification of a student's particular disability is useful is that it enables us to do a better job of statistically controlling for the severity of each student's disability when determining proficiency as measured by test scores. Previous research, which controlled only for whether a student had been diagnosed as disabled, treats identically the impact of every

Table 2. Summary of Number of McKay Accepting Private Schools Within Radius of Public Schools

	Within 5 Miles	Within 10 Miles
2001-02	3.4	9.5
2002-03	5.5	15.5
2003-04	7.1	20.3
2004-05	7.1	20.3

Table 3. Percent of Students in Each Disability Category, 2000

	Percent of All Students	Percent of Disabled Students
IEP	13.9%	
Specific Learning Disability	8.5%	61.2%
Speech	1.5%	10.6%
Emotional	1.4%	9.7%
Language	1.0%	7.3%
Emotional Mental	0.6%	4.3%
Other Health Impairment	0.2%	2.1%
Emotional Severe	0.2%	1.7%
Deaf-Hearing	0.1%	0.9%
Orthopedic	0.1%	0.8%
Autistic	<0.1%	0.3%
Visual-Blindness	<0.1%	0.3%
Traumatic Brain Injury	<0.1%	0.1%

kind of disability on students' academic achievement. That is, noting only whether a student is identified as disabled without disaggregating by type of disability ignores the disparate effects of degrees of disability, from mild to severe.

Another reason that the ability to identify a particular disabled student's diagnosis is important is that McKay vouchers could have effects on the academic performance of students remaining in the public school system according to their various disability classifications. In particular, if students with milder disabilities (SLD, language disability, etc.) are more likely to find private schools willing to enroll them than students with more severe disabilities (blindness, severe mental retardation, traumatic brain injury, etc.), then their respective public schools would face different levels of exposure to McKay.

Among the McKay-eligible, students diagnosed with SLD, the mildest classification, likely have the greatest access to private school alternatives. Some SLD students are not much different from non-disabled students, and thus pose fewer educational challenges for private schools. Indeed, there is some reason to believe that a substantial portion of students in the SLD category may not be disabled at all. Singer et al. (1989) find substantial variation across the states in the functional abilities of students identified as having a mild disability, indicating that not all states follow the same methods for identifying students. MacMillan and Siperstein (2001) suggest that public schools use low achievement alone in classifying students as SLD. Private schools may be particularly willing to accept students who suffer from little or no neurological obstacle to high achievement later on.

In contrast, we might expect that students with particularly severe or rare disabilities have fewer private school alternatives, even though the McKay voucher grant is larger for students with more severe disabilities. Serving students with certain disabilities could require an original fixed-cost investment in facilities that few private schools are willing to make, leaving the more severely disabled students with fewer educational options under McKay than students with milder disabilities. It is, however, important to note that previous research (Greene and Forster 2003) finds that the distribution of disabilities in the McKay program resembles the distribution in public schools.

Students' differential access to private schooling for the reasons offered above should also give public schools different levels of exposure to the McKay program. By distinguishing each student's particular disability classification, our data set allows us to determine whether the impact on the academic achievement of disabled students of the addition of a McKay-accepting private school near their public school varies according to the nature of their disabilities.

4. METHOD

We evaluate whether students in schools with greater exposure to McKay vouchers—measured by the number of private schools within a certain radius of their public school that are willing to accept the vouchers—made larger or smaller academic gains in math and reading than students in schools that faced less exposure to the program. Our analysis also measures the impact of differences in exposure to McKay on students in each disability category.

We use the panel data set that includes information on the universe of public school students in Florida, whether or not they are disabled. The dependent variable in the analyses—that is, the outcome we are evaluating—is the student's test score on the state's mandated math or reading exam.

We utilize this expansive data set to estimate student proficiency in math and reading over time. In essence, through the use of a so-called fixed-effects regression model, we can control for factors that influence a student's academic proficiency but are unobserved by the researcher—for example, parental involvement, nutrition, and wealth. The regression also statistically controls for observable factors important to student proficiency, such as the school district the child attends, the year of the observation, grade level, and observable student demographic characteristics that vary over time, such as whether the student is eligible

Table 4. Effect of McKay Competition on Student Math Test Scores						
	Private Schools Within 5 Miles			Private schools within 10 Miles		
	Coefficient	Robust Standard Error	t	Coefficient	Robust Standard Error	t
Specific Learning Disability * Within Radius	2.30	0.10	23.58 ***	1.13	0.04	26.97 ***
Speech * Within Radius	0.24	0.17	1.38	0.14	0.07	2.14 **
Emotional * Within Radius	1.20	0.24	4.97 ***	0.56	0.11	5.36 ***
Language * Within Radius	2.78	0.26	10.54 ***	1.19	0.11	11.28 ***
Emotional Mental * Within Radius	0.86	0.47	1.83 *	0.31	0.19	1.60
Other Health Impairment * Within Radius	0.97	0.35	2.73 ***	0.41	0.14	2.99 ***
Emotional Severe * Within Radius	0.87	0.48	1.83 *	0.41	0.19	2.14 **
Deaf-Hearing * Within Radius	1.98	0.75	2.64 ***	1.18	0.31	3.77 ***
Orthopedic * Within Radius	1.51	0.95	1.59	0.64	0.40	1.61
Autistic * Within Radius	0.75	1.12	0.67	0.37	0.42	0.88
Visual-Blindness * Within Radius	-0.49	1.36	-0.36	0.14	0.50	0.28
Traumatic Brain Injury * Within Radius	-0.41	2.28	-0.18	-0.51	0.97	-0.53
Within R-Square	0.5240			0.5242		
Number of Observations	6,219,617			6,219,617		
Number of Groups	2,398,331			2,398,331		
***Significant at p<.01 **Significant at p<.05 *Significant at p<.10						

for a free or reduced-price lunch or is identified as having limited English proficiency.

We do more than measure the overall effect on the performance of the average student (disabled or not disabled) of exposure to McKay: we also measure the differential impact on students within each particular disability classification. We do so by interacting the child's disability classification with the number of private schools within a given radius of his public school. These variables are an estimation of the average effect of increased exposure to the McKay program on the academic proficiency of students in each particular disability classification.[6]

We first estimate the effect by using as our exposure variable the number of private schools accepting McKay vouchers within a five-mile radius of a given public school in a particular year. In order to test for the robustness of our procedure, we then replace this number with the number of private schools accepting McKay vouchers within a ten-mile radius of the same public school. In order to establish the validity of a five-mile compass, we look for the impact of private schools that are farther away. We would expect that the effect of including more distant private schools would be smaller than the impact of the presence of more proximate private schools on public school performance.

5. RESULTS

The results of our estimation for student proficiency in math are found in Table 4. As will be the case throughout, for reasons of space we report estimates for only the interaction of the diagnosis and competition variables.[7]

Our variables of interest are the interaction terms, which evaluate the differential effect of McKay exposure on students with different diagnoses. McKay exposure and special-education students' performance in light of their diagnoses. The variables are sorted in the table according to the size of the student population

in the special-education category, which is imperfectly related to the severity of the diagnosis. The estimate on each of the interaction variables is positive, and most estimates (especially those for the less severe categories) are significantly different from (that is, almost certainly larger than) zero.

The results are similar for both the within-five-miles and the within-ten-miles specifications. The primary difference in the analyses appears to be that the estimates of the within-five-miles analysis are uniformly larger than the estimates of the within-ten-miles specification, which is as we would expect if students are less likely to enroll in McKay schools farther away from their homes than the public school in which they were previously enrolled.

Table 5 reports the results of our estimation for reading. The results are similar to those found for math, though the impact of McKay exposure on the reading scores of most categories of disabled students appears to be larger than it was on math scores. We again see a positive relationship between McKay exposure and academic proficiency in most of the diagnostic categories, especially the milder disabilities. As in math, the relationship uniformly declines as we expand the exposure variable to include schools within ten miles.

Table 6 puts our results of the within-five-miles estimation into a more manageable context. The table first reports the effect of McKay exposure on students within each classification in a school with the average number of nearby private schools accepting vouchers in 2004–05. The second column reports the overall effect on the test scores of a school with average McKay exposure by incorporating the estimate for both the overall effect of McKay exposure and the interaction term for a particular group. The third column states the overall effect on students in a school with average McKay exposure as standard deviation units.

Table 5. Effect of McKay Competition on Student Reading Test Scores

	Private Schools Within 5 Miles			Private schools within 10 Miles		
	Coefficient	Robust Standard Error	t	Coefficient	Robust Standard Error	t
Specific Learning Disability * Within Radius	3.377997	0.1214082	27.82 ***	1.72	0.05	32.98 ***
Speech * Within Radius	0.0440374	0.2217133	0.2	0.04	0.09	0.47
Emotional * Within Radius	0.1922976	0.2775664	0.69	0.26	0.12	2.19 ***
Language * Within Radius	2.391393	0.3159964	7.57 ***	1.07	0.13	8.30 ***
Emotional Mental * Within Radius	1.585794	0.5015176	3.16 ***	0.67	0.21	3.24 ***
Other Health Impairment * Within Radius	1.270033	0.4155005	3.06 ***	0.47	0.16	2.86 ***
Emotional Severe * Within Radius	0.6513608	0.5621964	1.16	0.46	0.23	2.04 **
Deaf-Hearing * Within Radius	1.380605	0.866282	1.59	0.86	0.36	2.35 **
Orthopedic * Within Radius	0.7317186	1.038647	0.7	0.21	0.44	0.49
Autistic * Within Radius	2.655537	1.11179	2.39 **	0.99	0.45	2.20 **
Visual-Blindness * Within Radius	1.747482	1.976992	0.88	0.71	0.79	0.89
Traumatic Brain Injury * Within Radius	0.7106963	2.323991	0.31	-0.59	1.01	-0.58
Within R-Square	0.3714			0.3716		
Number of Observations	6,296,617			6,296,617		
Number of Groups	2,406,010			2,406,010		

***Significant at p<.01 **Significant at p<.05 *Significant at p<.10

Table 6. Overall Results — School With Average Competition Within 5 Miles						
	Math			Reading		
	Differential Effect from Average Exposure	Overall Effect from Average Exposure	Overall Effect from Average Exposure in Standard Deviation Units	Differential Effect from Average Exposure	Overall Effect from Average Exposure	Overall Effect from Average Exposure in Standard Deviation Units
Specific Learning Disability	16.31	15.99	0.05 ***	23.98	24.47	0.07 ***
Speech	1.68	1.36	0.00	0.31	0.80	0.00
Emotional	8.52	8.20	0.03 ***	1.37	1.85	0.01
Language	19.71	19.38	0.06 ***	16.98	17.46	0.05 ***
Emotional Mental	6.10	5.77	0.02 *	11.26	11.74	0.03 ***
Other Health Impairment	6.87	6.54	0.02 ***	9.02	9.50	0.03 ***
Emotional Severe	6.20	5.88	0.02 *	4.62	5.11	0.01
Deaf-Hearing	14.05	13.72	0.04 **	9.80	10.29	0.03 *
Orthopedic	10.75	10.43	0.03	5.20	5.68	0.02
Autistic	5.33	5.01	0.02	18.85	19.34	0.05 **
Visual-Blindness	-3.47	-3.79	-0.01	12.41	12.89	0.04
Traumatic Brain Injury	-2.92	-3.24	-0.01	5.05	5.53	0.02

Average 7.1 McKay Accepting Private Schools Within 5 Miles in 2004-05
Standard Deviation on FCAT Math test in 2004-05 = 311.2186
Standard Deviation on FCAT Reading test in 2004-05 = 389.9618

***Significant at p<.01 **Significant at p<.05 *Significant at p<.10
Significance of overall relationship tested with F-test

The table shows that the effect on students in a school with average McKay exposure differed by disability classification. The effect for students identified as having a Specific Learning Disability, who constitute about 8.5 percent of all students in Florida and 61 percent of students in special education (see Table 2), was about a 0.05 standard deviation increase in math and a 0.07 standard deviation increase in reading.

6. CONCLUSION

This paper adds to an important and growing literature evaluating the impact of school-choice policies on the performance of public schools. Our results from evaluating Florida's McKay program provide additional evidence that rather than being harmed, public schools respond to the challenge of exposure to school choice by improving the education they provide. These findings are consistent with most previous research, which demonstrates school-choice policies' positive effect on public school achievement.

More specifically, this paper has provided the first quantitative evaluation of the impact of a voucher program on disabled students. Such research is of growing importance, given the substantial growth in school-choice programs aimed at this particular disadvantaged population. These initial results support the use of special-education vouchers to improve the educational outcomes of disabled students within public schools. Much more quantitative research on these increasingly important policies is necessary to provide a fuller understanding of their effects both on students who remain in public schools and on students who use such vouchers to attend private schools.

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Endnotes

1. Digest of Education Statistics 2006, table 50.

2. http://www.floridaschoolchoice.org/Information/McKay/files/Fast_Facts_McKay.pdf.

3. Ibid.

4. Many private school students are administered standardized exams in accordance with their school's policy. However, this information is not reported to the state.

5. Private schools that do not accept McKay vouchers are not counted as providing additional exposure to a public school. An increase in the number of private alternatives faced by a public school from one year to the next is most often the result of an existing private school's decision to receive McKay vouchers and not of the opening of a brand-new private school in the area.

6. We have identified three potential biases that might distort estimation of this regression: nonrandom attrition of students who utilize McKay vouchers; nonrandom selection of students into special-education programs due to changes in the financial incentives brought about by McKay; and nonrandom decisions of private schools to accept McKay vouchers. These issues are discussed in detail in the more technical version of the paper found online at: www.manhattan-institute.org/html/cr_52.htm. In each of these cases, we argue, and provide evidence, that these biases will tend to underestimate the true impact of McKay exposure on student academic achievement.

7. Full results are available from the authors by request.

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