

THE 123s OF SCHOOL CHOICE

What the research says about private
school choice programs in America

2019 EDITION



ABOUT EDCHOICE

EdChoice is a nonprofit, nonpartisan organization dedicated to advancing full and unencumbered educational choice as the best pathway to successful lives and a stronger society. EdChoice believes that families, not bureaucrats, are best equipped to make K–12 schooling decisions for their children. The organization works at the state level to educate diverse audiences, train advocates and engage policymakers on the benefits of high-quality school choice programs. EdChoice is the intellectual legacy of Milton and Rose D. Friedman, who founded the organization in 1996 as the Friedman Foundation for Educational Choice.

The contents of this publication are intended to provide empirical information and should not be construed as lobbying for any position related to any legislation.

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INTRODUCTION

Since the first modern-day voucher program launched in Milwaukee in 1990, researchers have studied private school choice programs. Few American education reforms, it seems, have been studied as much as choice. And even fewer, if any, have such a broad array of possible outcomes for students, schools, taxpayers and families.

Researchers from across the country have published more than 140 empirical studies on the effectiveness of these programs. And for most, that may seem an overwhelming amount of literature to tackle. That's why we are excited to bring you the first edition of *The 123s of School Choice*, an annually updated review of the available research on private school choice programs in America.

The first set of outcomes we cover are studies of the personal benefits that families can gain from participating in private school choice programs. These include:

- **Program Participant Test Scores:** These studies examine whether students who receive and/or use scholarships to attend a private school of their choice achieve higher test scores than students who applied for, but did not receive or use scholarships.
- **Program Participant Attainment:** These studies examine whether school choice programs have an effect on students' likelihood to graduate high school, enroll in college or attain a college degree.
- **Parent Satisfaction:** These studies rely on polling and surveys to measure the extent to which parents with children participating in private school choice programs are satisfied with their current school compared to their pre-program school or to non-program students.

The second set of outcomes we cover are studies of the benefits that communities and society can gain from these programs. These include:

- **Public School Students' Test Scores:** These studies examine whether students who leave public schools by using a private school choice program have an effect on the test scores of students who remain in public schools.
- **Civic Values and Practices:** These studies examine whether school choice programs have an effect on students' tolerance for the rights of others, civic knowledge, engaging in criminal activity, civic participation, volunteerism, social capital, civic skills, voter registration, voter turnout as well as patriotism.
- **Racial/Ethnic Integration:** These studies examine the effect of private school choice programs on racial and ethnic diversity in schools.
- **Fiscal Effects:** These studies examine whether school choice programs generate net savings, net costs or are cost-neutral for taxpayers.

We recognize that interpreting research findings is challenging. What constitutes a meaningful effect? Is a statistically significant finding educationally significant? How do we aggregate findings of programs that superficially look like one another but are actually quite different at the ground level? Scholars and advocates have debated and will continue to debate these questions.

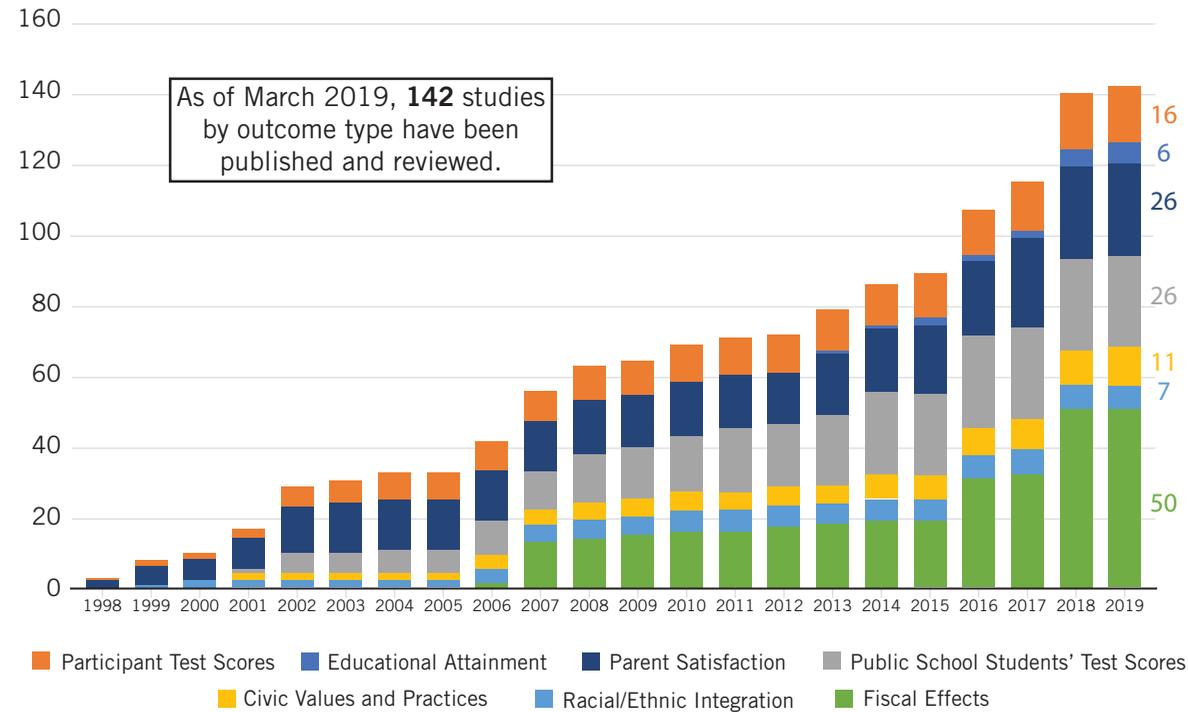
But as Judith in Monty Python's *Life of Brian* exclaims, "Something's actually happening, Reg!"¹

States across the country are considering and passing school choice programs. Other states are expanding existing school choice programs. Families are deciding whether or not to participate in them. In light of this, we have endeavored to produce a systematic review of the existing research on private school choice to best inform those decisions.

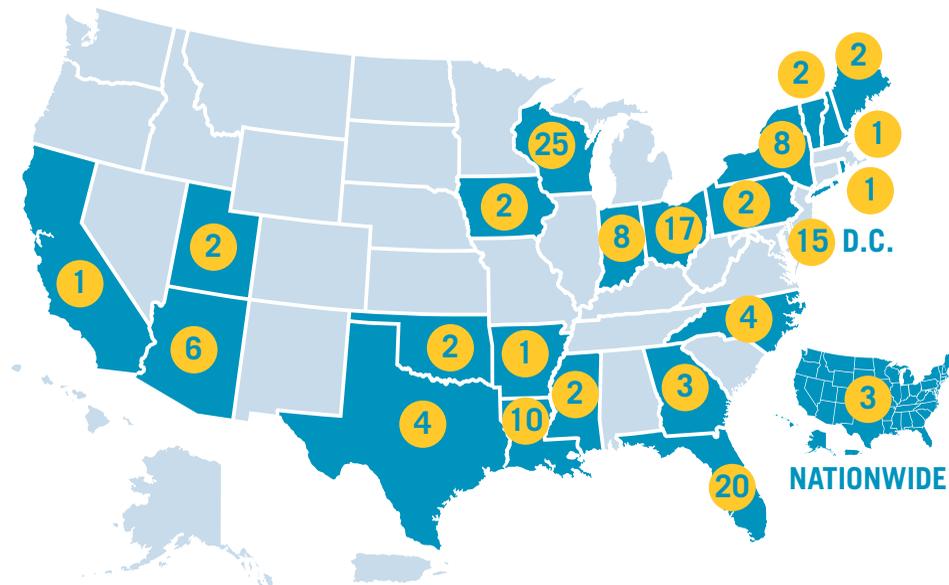
EdChoice has held a longstanding commitment to synthesizing the empirical research on private school choice outcomes. Greg Forster distilled previous summaries of the research that influenced our thinking and approach.² In this first installment of *The 123s of School Choice*, we renew our commitment to producing a publication that informs our readers about the summary research findings while also providing context about our methods and the varying bodies of research.

We hope *The 123's of School Choice* can be your single, most-trusted resource for understanding the rigorous research on private school choice programs in America. If you have any questions or feedback about this publication, feel free to email us at: research@edchoice.org.

Cumulative Number of Studies Published by Outcome and by Year Published



Number of Studies of Private School Choice Programs by Location



Overall Effects Counts for Studies of Private School Choice Programs

Outcome	Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Test Scores	16	11	3	3
Educational Attainment	6	4	2	0
Parent Satisfaction	26	26	0	0
Public School Students' Test Scores	26	24	1	1
Civic Values and Practices	11	6	5	0
Racial/Ethnic Integration*	7	6	1	0
Fiscal Effects	50	45	4	1

*One study employed multiple measures of racial integration and concluded that the effects of the program was overall neutral. We included this study in the "No Visible Effect" column.

What Can Research Tell Us About School Choice?

When it comes to evaluating any public policy, social science is an important, but limited, tool in our toolbox.

The findings of studies, articles and reports have to be examined not only for their validity but also must be put in the context of values and priorities that exist outside of the realm of the measurable and quantifiable. Studies are limited by their sample, their methods, the data available to researchers and the quality of the outcome measures used to determine impact. If the sample is too limited, the data too messy or the outcome measure uncorrelated with what we really care about, a study's large effect size might not actually be all that meaningful. Studies like this get published all of the time. Careful readers will dig into them before drawing broad sweeping conclusions.

But even the best-designed studies are limited to things that we can measure and count. It is quite challenging to put a number on liberty, autonomy, dignity, respect, racism or a host of constructs that we all know exist and are meaningful. Even if an intervention has a positive effect on some measurable outcome, it might violate a principle that supersedes it.

Social science should be used as a torch, not a cudgel. It should help us understand how programs work and how they can work better. As an organization that produces research related to private school choice and regularly uses it, we think it is important to summarize the extant literature on a topic and speak frankly about both its strengths and limitations.

So, before we dive into the literature on private school choice, there are several important contextual issues that we need to discuss. We also want to take a moment and explain some of the decisions that we made to include some studies in our review and not others.

Heterogeneity of Treatment

Gertrude Stein wrote “a rose is a rose is a rose,” but is it also true that “a voucher is a voucher is a voucher?”³ Not necessarily. No two private school choice programs are alike. They differ across an array of design features, from how they are funded to rules on accountability to eligibility criteria. The Cleveland Scholarship Program, for example is worth \$4,650 for elementary students and \$6,000 for high school students (in 2018–19), while the D.C. Opportunity Scholarship is \$8,857 for elementary school students and \$13,287 for high school students (in 2018–19). In the Louisiana Scholarship Program, participating schools have to take the Louisiana state standardized test, in the Florida Tax Credit Scholarship Program, students must simply take one of several approved nationally normed standardized tests. Some programs allow schools to apply admissions requirements to students, others do not. Some allow families to “top up” their scholarship, adding their own money to help pay for schools charging tuition higher than the voucher amount, others require participating schools to accept the voucher for the full cost of the child’s education. Some programs require students to apply to a school first, and then apply for the voucher while others have students apply for the voucher first and then apply to the school. Some programs are statewide while others are limited to certain geographic areas. Some are limited to low-income students, others are limited to students with special needs. The list goes on.

Any reasonable observer would expect these program differences to affect their impact on the students and schools that participate. When we see different outcomes from different studies, how much is that due to the peculiarities of those particular programs? What peculiarities drive those findings? We don’t yet know.

We combine these findings and advise some caution about over-interpretation. The findings of one study limited to one region or of a program that is structured in a particular way might not apply to another potential program in a different place that is structured in a different way. This is why in our summaries, we are clear about the geographic location of the studies that we describe, so that readers can understand the context around the findings.

Measures Matter

It is always important to understand what researchers are measuring. Testing is widely implemented across all sectors of schooling, and thus it is unsurprising that a healthy segment of the school choice literature studies programs’ effects on student test scores. But it is important to note that testing is used differently in different education sectors. For most public and charter schools, test scores are part of state accountability systems. They can be rewarded or penalized based on how well students perform. Most private schools do not participate in these systems. If you use a measure that one sector is pushed to maximize by the state and another is not, you might confuse the effect of that pushing with the effectiveness of the school.

It is also important to note that many private schools specifically eschew state standards and state standardized tests. They argue that those tests do not measure what matters and thus teach their own curriculum aligned to what they feel is most important. If we use the results on the state test to compare these schools, we might yet again confuse the results. The scores of schools that are aligned to the state curriculum might do better, not because they are “better” schools, but simply because they are teaching more explicitly what the state test is measuring.

It is also important to know why parents make choices. If they don’t value test scores, and thus don’t choose schools in an effort to maximize them, we shouldn’t be surprised if test scores are lower in the schools that they choose. Think of it this way. Some folks like big pickup trucks because they want to haul stuff in the bed or tow their boat to the lake on the weekend. They choose based on cargo space and towing capacity. If we measure cars based on fuel efficiency, arguing that better cars are more fuel efficient, it will look like truck owners are making “bad” choices. They aren’t. They are simply choosing on a different dimension.

Finally, it is important to note two papers that documented evidence suggesting a disconnect between test scores and long-run outcomes such as educational attainment in school choice program evaluation.⁴ There are plausible explanations for this disconnect. For instance, differences in test scores among students in public and private schools may simply reflect differences in curricula rather than quality. Long-run outcomes of educational attainment, on the other hand, may yield better proxies for how a private school choice program affected a student’s employment prospects and future earnings. So far there has not been any study to date examining the effect of any private school choice program on outcomes related to earned income or employment.

Why Randomized Control Trials?

One key decision that we make in compiling the studies that are in the participant effects section was to limit the sample to randomized control trials (RCTs). There have been lots of studies of private school choice programs (several of which we reference later) that are not RCTs, and so for this guide we are clear about when we include or exclude non-RCT studies. Most research literatures either have very few RCT studies so far or are simply not conducive to that type of research design.

When evaluating the effect of a private school choice program, we have to ask the key question: “Compared to what?”

A decrease in average graduation rates among students participating in a choice program doesn’t tell us much about the effectiveness of the program. Comparing the change in program participants’ graduation rates with students in public schools is somewhat better, but even this comparison provides limited (and possibly misleading) information about the program’s effectiveness. There may be factors not being accounted for or observed that explain any difference in those outcomes. This fear is particularly acute in school choice research, as seeking out a school choice program evinces a level of motivation that is potentially not present in families that do not apply to such programs. In fact, trying to cope with selection bias is a central methodological issue in estimating the effects of school choice programs.

Ideally, to evaluate the effectiveness of a school choice program, we would compare the change in outcomes between students who use a scholarship with the change in outcomes of an identical group of students (“twins”) who do not participate in the program. Creating a comparison group that provides an “apples-to-apples” comparison is challenging.

The best methodology available to researchers for generating “apples-to-apples” comparisons is an RCT, which researchers also refer to as random assignment studies. These studies are also known as experimental studies and widely considered to be the “gold standard” of research methodology. In fact, the What Works Clearinghouse in the U.S. Department of Education designates RCTs as the only research method that can receive the highest rating, “Meets Group Design Standards *Without Reservations*”.⁵

In RCTs, some random process (like a random drawing) is used to assign students to the treatment and control groups. This method is often referred to as the “gold standard” of research methods because the treatment and comparison groups are, on average, identical except for one aspect: one group receives the intervention while the other does not. We can attribute any observed differences in outcomes to the treatment (a causal relationship).

Researchers that conduct RCT studies may report unbiased estimates of effects based on two different comparisons:

- (1) Researchers may report estimates for “intent-to-treat” (ITT) effects, which compares outcomes between students who won the lottery and students who did not win the lottery. ITT is the estimated effect of winning the lottery.
- (2) Researchers may also report “treatment-on-the-treated” (TOT) effects, which compare differences in outcomes between students who attended a private school and students who did not attend private school, regardless of their lottery outcome. TOT is the estimated effect of using the voucher.

When random assignment is not possible, some researchers use statistical techniques to approximate randomization. These studies are sometimes referred to as nonexperimental studies. All research methods, including RCT, have tradeoffs. While RCTs have very high internal validity because of their ability to control for unobservable factors (e.g., student and parent motivation), they do not necessarily provide very high (or low) external validity.

Internal validity is the degree to which the effects we observe can be attributed to the program and not other factors.

External validity is the extent to which results can be generalized to other students in other programs.

In addition to having a high degree of internal validity, another reason we favor RCTs over other methods is that, in the context of evaluating private school choice programs, almost all RCTs occur at the level of the program itself. This is in contrast with RCTs in other education policy areas, such as charter schools. In charter school RCTs, lotteries occur at the school level, meaning that only schools that held

lotteries are included in the study. Given that high-quality schools are likely to be in high demand and oversubscribed, results from these studies are likely to be representative of oversubscribed schools, but not necessarily representative of schools that are in low demand. Results from RCT studies of programs where the lottery is held at the program level give us an estimate of the effect of the program rather than just oversubscribed schools.

As you may have seen if you’ve already flipped through this guide, we report results for studies based on both random assignment (whenever possible) and nonexperimental methods that have some strategy for trying to control for self-selection *until* 10 random assignment studies based on unique student populations become available.

Search Process

EdChoice regularly monitors research on private school choice. To be as comprehensive as possible, we enlisted Hanover Research to conduct a systematic search from 2016 through 2017, since EdChoice’s last research review publication. Hanover searched several databases including EconLit, EBSCO, PsychINFO, ProQuest, and Google Scholar. They also searched individual publications and working paper series such as *Education Next*, National Bureau of Economic Research, and *Journal of School Choice*. Fourteen different search terms were used, including “school choice,” “school voucher,” “tax credit scholarships,” “tuition tax credits,” “education savings accounts,” and “ESA.” Since Hanover completed this search, we conducted searches on a quarterly basis using EBSCO and Google Scholar.

How Do We Define a Study?

We define a “study” as a unique set of one or more data analyses, published together, of at least one private school choice program. “Unique” means using data and analytic specifications not identical to those in previously reported studies. “Published” means reported to the public in any type of publication, paper, article or report. By this definition, all data analyses on a single private school choice program outcome that are reported in a single publication are taken together as one “study.” Analyses studying multiple programs or multiple program outcomes are identified as different studies even if they are contained in a single publication.

Multiple Studies of the Same Programs

We include multiple studies of the same program in our review as unique observations. We include them because replication is an integral part of the scientific process for discovering truth. It is important to consider research by different researchers who study the same programs and different students. It is also important to consider reports that employ different rigorous methods. If these efforts arrive at similar conclusions, then we can have more confidence about the effects of a program we observe.

We also took care to avoid unnecessary double counting, as this could lead to a single program excessively influencing the results. In cases where a team of researchers conduct multiple studies to evaluate a given program over, we include the most recent analysis from the evaluation. We exclude studies that were conducted by the same researchers or research team using the same data. For example, if a research team is conducting a longitudinal evaluation and an additional year of data become available to update an analysis, we include the most recent analysis and exclude the older analyses.

If an article or paper includes multiple distinct analyses of different private school choice programs, then we counted each of the analyses as distinct studies. We include replication studies by different research teams and studies that use different research methods.

Why No Effect Sizes?

This guide is a summary of the relevant research on private school choice programs. It is not a meta-analysis of those research areas. Meta-analyses attempt to look at the estimates of program effects from individual studies and combine them to determine an overall average effect across all of the studies. These are difficult and complicated studies to do well. They involve norming the effect sizes to numbers that can be combined with one another and averaged.

That kind of methodology is beyond the scope of our project here. Our goal is to summarize the literature. To do so, we have sacrificed a measure of specificity. We believe that tradeoff is worth making. But we do want to emphasize that several systematic reviews or meta-analysis have been conducted on certain outcomes and, where appropriate, we cite in the relevant section.

Now that we have laid out our considerations, we share our summary findings in the rest of this publication. We have undertaken this exercise to help inform the debate, not to circumvent it. These findings, as with all findings of social science research, must be taken in their proper context and with the appropriate qualifications and caveats. We hope to set that example at EdChoice in the ways that we use the findings of the studies that follow, and fully expect to hear from our readers when we do not.

RESEARCH OVERVIEWS FOR SEVEN SCHOOL CHOICE OUTCOMES

PROGRAM PARTICIPANT TEST SCORES

Do students get better test scores after getting private school vouchers? Studies reviewed in this section reveal whether students who won a lottery and/or used scholarships to attend a private school of their choice achieved higher test scores than students who applied for but did not receive or use scholarships.

Researchers have studied the effects that programs have on participating students' test scores. About one-third of these studies comprise analyses on a privately funded voucher program in New York City. The Louisiana Scholarship Program (LSP) has been the only statewide voucher program studied experimentally. All other experimental studies have been of voucher or scholarship programs limited to cities, including Milwaukee, Charlotte, Cleveland, Dayton, New York City and Toledo.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Test Scores	16	11	3	3

These studies examined three voucher programs and five privately funded scholarship programs across five states and D.C. Of the 16 random-assignment studies examining participant test scores, 11 have found positive outcomes for either the full sample or at least one subsample of students studied. Three found no visible effect for any group of students, and three found negative outcomes for all or some group of students.

About the Methods

A “study” is defined as an analysis of a private school choice program in the United States, either publicly funded or privately funded. Random assignment (also called RTC) is the most rigorous type of analysis in social science. For this reason, we focus only on random assignment studies when possible.

Our inclusion criteria require at least 10 random assignment studies of a certain outcome to exist in order for us to exclude all other nonexperimental study types. In the case of studies on program participant test scores, we include only random assignment studies.

Random assignment provides comparison groups that are, on average, equivalent on factors that are both observable (e.g., baseline test scores and gender) and unobservable (e.g., student's and parent's motivation). The only difference between the two groups is exposure to the treatment. Thus, differences in measured outcomes between lottery winners and lottery losers can be attributed to the private school choice programs rather than students' background characteristics.

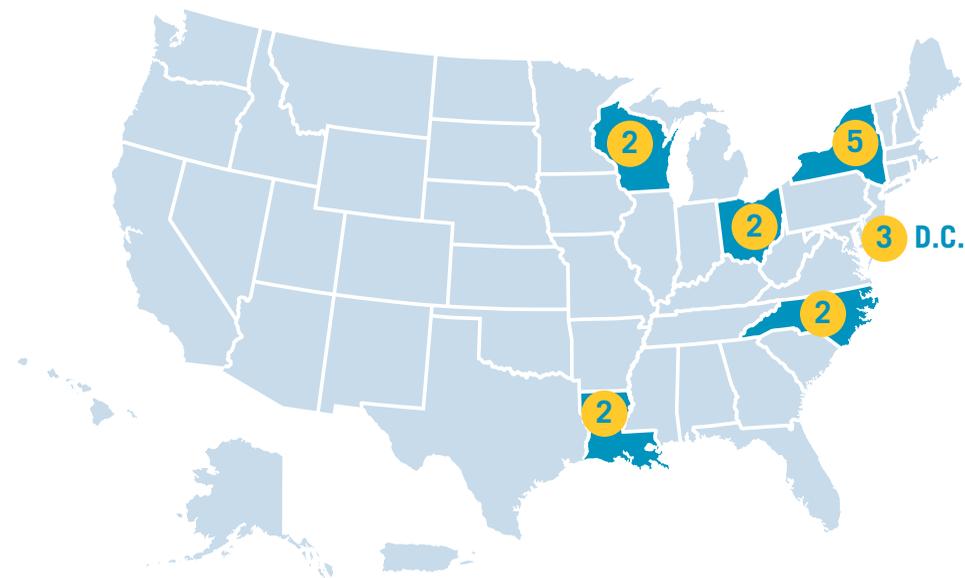
We consider multiple studies on one program as unique if they study a different group of students or use different statistical models or research methods. Several longitudinal evaluations have been conducted on private school choice programs, with results reported annually. In these cases, we include the most recent evaluation. We exclude studies that were conducted by the same researchers or research team using the same data.

Test Score Outcomes of Participants from Experimental Studies

Author(s)	Location	Program Name	Program Type	Year	Any Positive Effect		No Visible Effect		Any Negative Effect	
					All students (full sample)	Some students (subsample)	All students (full sample)	Some students (subsample)	All students (full sample)	Some students (subsample)
Abdulkadiroglu, Pathak, and Walters	Louisiana	Louisiana Scholarship Program	V	2018					X	X
Dynarski et al.	Washington, D.C.	Opportunity Scholarship Program	V	2018					X	X
Mills and Wolf	Louisiana	Louisiana Scholarship Program	V	2017		✓	○			X
Wolf et al.	Washington, D.C.	Opportunity Scholarship Program	V	2013	✓	✓				
Greene, Peterson, and Du	Milwaukee, WI	Milwaukee Parental Choice Program	V	1999	✓					
Rouse	Milwaukee, WI	Milwaukee Parental Choice Program	V	1998	✓	✓				
Bitler et al.	New York, NY		P	2015			○	○		
Jin, Barnard, and Rubin	New York, NY		P	2010		✓				
Cowen	Charlotte, NC		P	2008	✓					
Bettinger and Slonim	Toledo, OH		P	2006			○			
Krueger and Zhu	New York, NY		P	2004			○	○		
Barnard et al.	New York, NY		P	2003		✓	○			
Howell et al.	Washington, D.C.		P	2002	✓	✓				
Howell et al.	New York, NY		P	2002	✓	✓				
Howell et al.	Dayton, OH		P	2002		✓	○			
Greene	Charlotte, NC		P	2001	✓					

V = Voucher | P = Private Scholarship

Number of Studies on Program Participant Test Scores by Location



Additional Research Context

Researchers from the University of Arkansas conducted a meta-analysis of the test score effects of private school choice programs. Dany Shakeel, Kaitlin Anderson and Patrick Wolf analyzed studies on school voucher programs globally and estimated the overall effects of these programs on participants' reading, English and math test scores.⁶ They found that students who simply won the voucher lottery (even if they didn't use the voucher) saw small positive but statistically insignificant gains on test scores. On the other hand, students who won the voucher lottery and used the voucher saw larger positive gains on test scores that equate roughly to 50 more days of learning in math and 30 more days of learning in reading and English.⁷

Results from the analysis also suggest that reading and math scores increase the longer a student uses a voucher. Impact estimates in reading and English for students participating in U.S. voucher programs indicate a small, negative and statistically insignificant average treatment effect in students' first year in a program. In year four, this effect is positive and statistically significant. The pattern is similar for math, except that year four estimates are positive but remain statistically insignificant.

It is worth noting that recent nonexperimental studies on voucher programs in Indiana and Ohio received considerable media attention in the last few years. These analyses used matching methods

to study the effects of the program on math and reading or English/Language Arts test scores. Both studies found negative math and reading or English/Language Arts test score effects.⁸ A research team from the School Choice Demonstration Project out of the University of Arkansas conducted a longitudinal evaluation of Milwaukee’s voucher program that also used matching methods to study test score effects and found null effects for math and positive effects on reading.⁹

Although matching may be the best research method available for studying other programs that are not or cannot be oversubscribed, they are not as effective as randomized experiments in controlling for self-selection bias. Given the large number of random assignment studies of the effects of private school choice programs on participant test scores, we are more selective with our methods so that we focus attention on the more rigorously designed studies.

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Atila Abdulkadiroglu, Parag A. Pathak, and Christopher R. Walters (2018), Free to Choose: Can School Choice Reduce Student Achievement? *American Economic Journal: Applied Economics*, 10(1), pp. 175–206, <https://dx.doi.org/10.1257/app.20160634>

Mark Dynarski, Ning Rui, Ann Webber, and Babette Gutmann (2018), *Evaluation of the DC Opportunity Scholarship Program: Impacts Two Years After Students Applied* (NCEE 2018-4010), retrieved from Institute of Education Sciences website: <https://ies.ed.gov/ncee/pubs/20184010/pdf/20184010.pdf>

Jonathan N. Mills and Patrick J. Wolf (2017), *The Effects of the Louisiana Scholarship Program on Student Achievement After Three Years* (Louisiana Scholarship Program Evaluation Report 7), retrieved from <https://dx.doi.org/10.2139/ssrn.2738805>

Marianne Bitler, Thurston Domina, Emily Penner, and Hilary Hoynes (2015), Distributional Analysis in Educational Evaluation: A Case Study from the New York City Voucher Program, *Journal of Research on Educational Effectiveness*, 8(3), pp. 419–450, <https://dx.doi.org/10.1080/19345747.2014.921259>

Patrick J. Wolf, Brian Kisida, Babette Gutmann, Michael Puma, Nada Eissa, and Lou Rizo (2013), School Vouchers and Student Outcomes: Experimental Evidence from Washington, D.C., *Journal of Policy Analysis and Management*, 32(2), pp. 246–270, <https://dx.doi.org/10.1002/pam.21691>

Hui Jin, John Barnard, and Donald Rubin (2010), A Modified General Location Model for Noncompliance with Missing Data: Revisiting the New York City School Choice Scholarship Program using Principal Stratification, *Journal of Educational and Behavioral Statistics*, 35(2), pp. 154–173, <https://dx.doi.org/10.3102/1076998609346968>

Joshua Cowen (2008), School Choice as a Latent Variable: Estimating the “Complier Average Causal Effect” of Vouchers in Charlotte, *Policy Studies Journal*, 36(2), pp. 301–315, <https://dx.doi.org/10.1111/j.1541-0072.2008.00268.x>

Eric Bettinger and Robert Slonim (2006), Using Experimental Economics to Measure the Effects of a Natural Educational Experiment on Altruism, *Journal of Public Economics*, 90(8–9), pp. 1625–1648, <https://dx.doi.org/10.1016/j.jpubeco.2005.10.006>

Alan Krueger and Pei Zhu (2004), Another Look at the New York City School Voucher Experiment, *American Behavioral Scientist*, 47(5), pp. 658–698, <https://dx.doi.org/10.1177/0002764203260152>

John Barnard, Constantine Frangakis, Jennifer Hill, and Donald Rubin (2003), Principal Stratification Approach to Broken Randomized Experiments: A Case Study of School Choice Vouchers in New York City, *Journal of the American Statistical Association*, 98(462), pp. 310–326, <https://dx.doi.org/10.1198/016214503000071>

William G. Howell, Patrick J. Wolf, David E. Campbell, and Paul E. Peterson (2002), School Vouchers and Academic Performance: Results from Three Randomized Field Trials, *Journal of Policy Analysis and Management*, 21(2), pp. 191–217, <https://dx.doi.org/10.1002/pam.10023>

Jay P. Greene (2001), Vouchers in Charlotte, *Education Matters*, 1(2), pp. 55–60, retrieved from Education Next website: http://educationnext.org/files/ednext20012_46b.pdf

Jay P. Greene, Paul Peterson, and Jiangtao Du (1999), Effectiveness of School Choice: The Milwaukee Experiment, *Education and Urban Society*, 31(2), pp. 190–213, <https://dx.doi.org/10.1177/0013124599031002005>

Cecilia E. Rouse (1998), Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program, *Quarterly Journal of Economics*, 113(2), pp. 553–602, <https://dx.doi.org/10.1162/003355398555685>

PROGRAM PARTICIPANT ATTAINMENT

This section reviews studies that examined whether students who won a lottery or used scholarships to attend a private school of their choice were more likely to graduate from high school, more likely to enroll in college and/or more likely to persist in college than students who did not use scholarships.

Parents, policymakers, and other stakeholders ultimately care about the long-run effects of education programs. Some research suggests a relationship between better educational attainment and later life outcomes, such as employment outlook, earnings, health, longevity and likelihood to commit crime. From the early years of choice programs, some people have usually relied on test scores to help determine the effectiveness of choice programs on grounds that they provide reliable proxies for outcomes later in life.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Attainment	6	4	2	0

These studies examined three voucher programs, one tax-credit scholarship program and one privately funded scholarship program across four states and D.C. Of the six studies examining program participants' educational attainment, four have found positive outcomes for either the full sample or at least one subsample of students studied and two studies found no visible effect for any group of students. None of these studies found negative educational attainment outcomes for all or some students.

About the Methods

Studies considered in this section employ random assignment and matching methods. In the context of school choice research, random assignment occurs via lotteries conducted for oversubscribed programs where lottery winners are awarded scholarships to attend a private school, and lottery losers do not receive vouchers. Studies that use matching methods compare students participating in a choice program with a group of students enrolled in public schools that have the same or similar observed characteristics, such as baseline test scores, free and reduced-price lunch status, race/ethnicity or parent characteristics.

Given that only three studies on educational attainment utilize random assignment, we also include studies that use nonexperimental methods that use some strategy for controlling for self-selection. We exclude observational methods with only control variables as they do not control for self-selection.

Additional Research Context

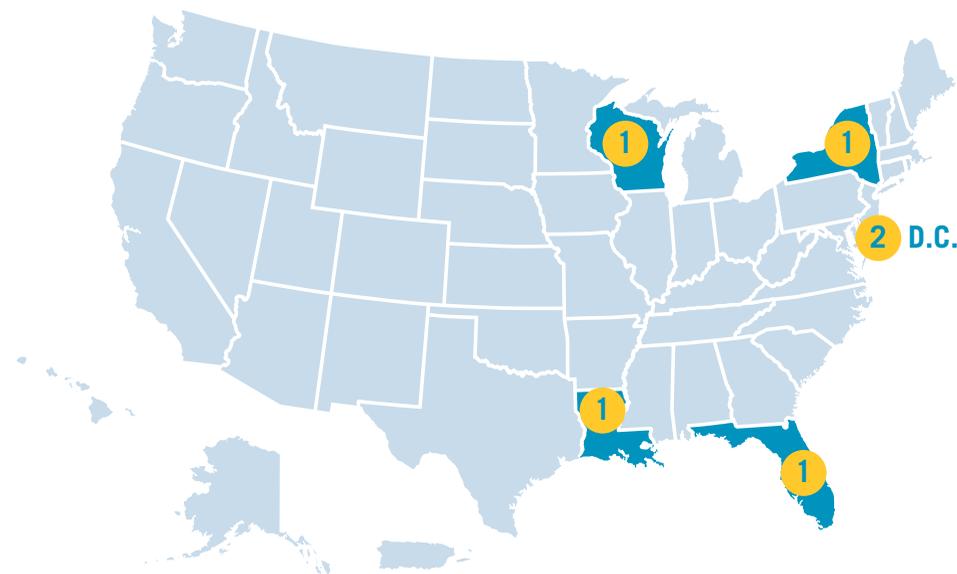
Lisa Foreman reviewed the academic literature on educational attainment effects on students participating in private school voucher programs and charter schools.¹⁰ She found generally positive findings in the studies she reviewed. We do not include one study that was included in Foreman's review because it is an observational study and does not use methods to account for self-selection.¹¹

Attainment Outcomes of Participants from All Empirical Studies

Author(s)	Location	Program Name	Program Type	Year	Any Positive Effect		No Visible Effect		Any Negative Effect	
					All students (full sample)	Some students (subsample)	All students (full sample)	Some students (subsample)	All students (full sample)	Some students (subsample)
Chingos	Washington, D.C.	Opportunity Scholarship Program	V	2018			○	○		
Erickson, Mills, and Wolf	Louisiana	Louisiana Scholarship Program	V	2018			○	○		
Wolf, Witte, and Kisida	Milwaukee, WI	Milwaukee Parental Choice Program	V	2018	✓					
Wolf et al.	Washington, D.C.	Opportunity Scholarship Program	V	2013	✓	✓				
Chingos, Monarrez, and Kuehn	Florida	Florida Tax Credit Scholarship Program	TCS	2019	✓	✓				
Chingos and Peterson	New York, NY		P	2015		✓	○			

V = Voucher | TCS = Tax-Credit Scholarship | P = Private Scholarship

Number of Studies on Attainment Outcomes of Participants by Location



Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Matthew M. Chingos, Tomas Monarrez, and Daniel Kuehn (2019), *The Effects of the Florida Tax Credit Scholarship Program on College Enrollment and Graduation: An Update*, retrieved from Urban Institute website: https://www.urban.org/sites/default/files/publication/99728/the_effects_of_the_florida_tax_credit_scholarship_program_on_college_enrollment_and_graduation_2.pdf

Matthew M. Chingos (2018), *The Effect of the DC School Voucher Program on College Enrollment*, retrieved from Urban Institute website: https://www.urban.org/sites/default/files/publication/96686/the_effect_of_the_dc_school_voucher_program_on_college_enrollment_1.pdf

Heidi H. Erickson, Jonathan N. Mills, and Patrick J. Wolf (2018, March), *The Preliminary Effects of the Louisiana Scholarship Program on College Entrance*, paper presented at the 43rd Annual Conference of the Association for Education Finance and Policy, Portland, OR, retrieved from https://aefpweb.org/sites/default/files/webform/AEFP_preliminaryLSPattainment.pdf

Patrick J. Wolf, John F. Witte, and Brian Kisida (2018), *Do Voucher Students Attain Higher Levels of Education? Extended Evidence from the Milwaukee Parental Choice Program*, retrieved from Urban Institute website: https://www.urban.org/sites/default/files/publication/96721/do_voucher_students_attain_higher_levels_of_education_0.pdf

Matthew M. Chingos and Paul E. Peterson (2015), Experimentally Estimated Impacts of School Vouchers on College Enrollment and Degree Attainment, *Journal of Public Economics*, 122, pp. 1-12, <https://dx.doi.org/10.1016/j.jpubeco.2014.11.013>

Patrick J. Wolf, Brian Kisida, Babette Gutmann, Michael Puma, Nada Eissa, and Lou Rizo (2013), School Vouchers and Student Outcomes: Experimental Evidence from Washington, DC, *Journal of Policy Analysis and Management*, 32(2), pp. 246-270, <http://dx.doi.org/10.1002/pam.21691>



PARENT SATISFACTION

This section considers the effect of private school choice programs on parents' satisfaction with their chosen schools. We examine this body of research because parents are in the best position to understand what educational environment best fits their children. There does not exist a single way or type of school that can serve all children well. Considering parent satisfaction can help policy makers gauge the efficacy of choice policies.

Most studies focus on overall school satisfaction, while some narrow in on satisfaction with specific aspects of the chosen school. When possible, study authors draw direct comparisons to families' former public schools. Studies that ask parents of all schooling options allow for comparisons of satisfaction across schooling sectors.

The body of parent satisfaction studies has examined private school choice programs in Arizona, California, Florida, Georgia, Indiana, Mississippi, North Carolina, New Hampshire, New York, Ohio, Texas, Wisconsin and D.C., plus national programs. Private school choice programs in Wisconsin have been the most studied in terms of numbers of parent satisfaction studies.

Overall, parents with children participating in programs are more satisfied with their chosen private school than their previous school and are more satisfied with their schools than other private school parents and public school parents.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Parent Satisfaction	26	26	0	0

These studies examined two ESA programs, seven voucher programs, three tax-credit scholarship programs, and at least seven privately funded scholarship programs across 12 states and D.C. Of the 26 studies examining the effects of private school choice programs on parent satisfaction, 26 have found positive effects, zero studies found no visible effect and zero studies found negative effects.

About the Methods

Studies in this section make use of surveys of parents of participating students to gauge satisfaction with their chosen private school compared to their previous school or compared to non-participant satisfaction levels.

Some of the programs studied have designs that allow for a random assignment study, while most are observational—meaning differences are compared within or across groups that were not randomly assigned. Our inclusion criteria require at least 10 studies based on random assignment in order to exclude all nonexperimental studies. Given that eight studies on parent satisfaction use random assignment, we include studies that use nonexperimental methods.

Parent Satisfaction Impacts from Private Educational Choice Programs

Author(s)	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
Kittredge	Equal Opportunity for Students with Special Needs Program	Mississippi	ESA	2016	✓		
Butcher and Bedrick	Empowerment Scholarship Accounts	Arizona	ESA	2013	✓		
Legislative Audit Bureau	Special Needs Scholarship Program	Wisconsin	V	2018	✓		
Catt and Rhinesmith	Choice Scholarship Program	Indiana	V	2017	✓		
Egalite, Gray, and Stallings	Opportunity Scholarships	North Carolina	V	2017	✓		
Kisida and Wolf	Opportunity Scholarship Program	Washington, D.C.	V	2015	✓		
Witte et al.	Milwaukee Parental Choice Program	Milwaukee, WI	V	2008	✓		
Greene and Forster	John M. McKay Scholarships for Students with Disabilities Program	Florida	V	2003	✓		
Witte	Milwaukee Parental Choice Program	Milwaukee, WI	V	2000	✓		
Metcalf	Cleveland Scholarship Program	Cleveland, OH	V	1999	✓		
Peterson, Howell, and Greene	Milwaukee Parental Choice Program	Milwaukee, WI	V	1999	✓		
Greene, Howell, and Peterson	Cleveland Scholarship Program	Cleveland, OH	V	1998	✓		
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	V/TCS	2016	✓		
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	V/TCS	2015	✓		
Catt and Rhinesmith	School Scholarship Tax Credit	Indiana	TCS	2017	✓		
Department of Revenue Administration	Education Tax Credit Program	New Hampshire	TCS	2017	✓		
Kelly and Scafidi	Qualified Education Expense Tax Credit	Georgia	TCS	2013	✓		
Howell and Peterson		Dayton, OH	P	2002	✓		
Howell and Peterson		New York, NY	P	2002	✓		
Howell and Peterson		National	P	2002	✓		
Howell and Peterson		Washington, D.C.	P	2002	✓		
Peterson and Campbell		National	P	2001	✓		
Greene		Charlotte, NC	P	2001	✓		
Peterson, Campbell, and West		San Francisco, CA	P	2001	✓		
Peterson, Myers, and Howell		San Antonio, TX	P	1999	✓		
Weinschrott and Kilgore		Indianapolis, IN	P	1998	✓		

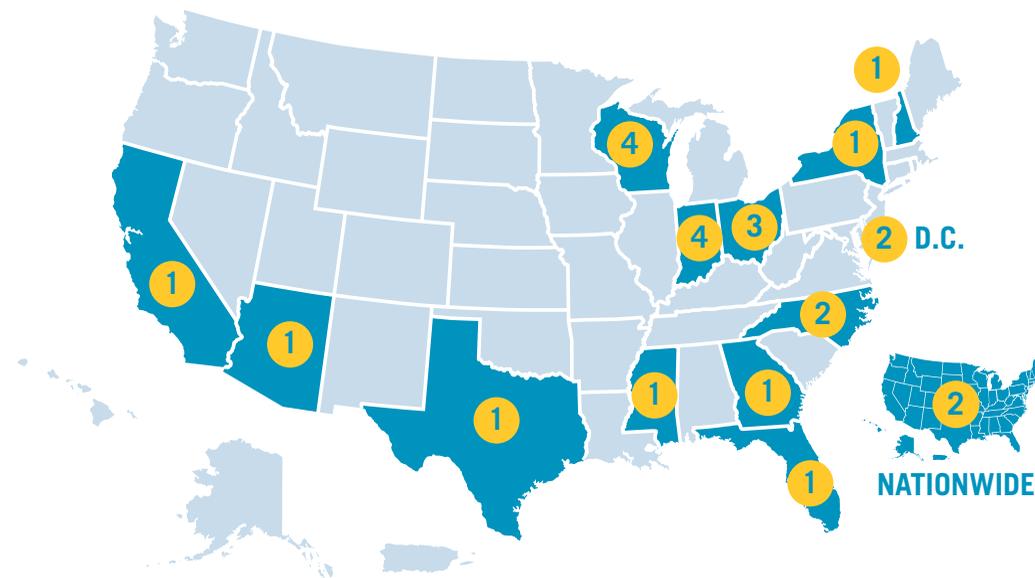
ESA = Educational Savings Account | V = Voucher | TCS = Tax-Credit Scholarship | P = Private Scholarship

*The report combined voucher and tax-credit scholarship parents into "Choice Parents," although anyone could calculate voucher and tax-credit scholarship results based on data tables in the report appendices.

†The report combined voucher and tax-credit scholarship parents into "Choice Parents" for all information made publicly available.

Note: This table shows all studies using all methods.

Number of Studies on Parent Satisfaction by Location



Additional Research Context

Evan Rhinesmith conducted a systematic review to synthesize the parent satisfaction literature for private school choice programs. The systematic review reports that participating in private school choice programs leads to higher levels of parent satisfaction. Rhinesmith states, “If methodology is behind the results, we would expect the experimental and observational studies to differ dramatically in their results. They do not. Whether students enrolled in their choice program through lottery or self-sorted into their private school of choice, the results have shown that providing choice in education leads to higher levels of parent satisfaction.”¹²

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Legislative Audit Bureau (2018), *Special Needs Scholarship Program* (Report 18-6), retrieved from Wisconsin State Legislature website: <https://legis.wisconsin.gov/lab/media/2753/18-6full.pdf>

Department of Revenue Administration (2017), *Scholarship Organization Report: Giving and Going Alliance*, retrieved from <https://www.revenue.nh.gov/quick-links/documents/givingandgoingalliance.PDF>; Department of Revenue Administration (2017), *Scholarship Organization Report: Children’s Scholarship Fund*, retrieved from <https://www.revenue.nh.gov/quick-links/documents/childrens-scholarshipfund.PDF>

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Brett Kittredge (2016), *The Special Needs ESA: What Families Enrolled in the Program Are Saying After Year One*, retrieved from Empower Mississippi website: <http://empowerms.org/wp-content/uploads/2016/12/ESA-Report-final.pdf>

Paul DiPerna (2015), *Why Indiana Voucher Parents Choose Private Schools*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/07/Indiana-Survey.pdf>

Brian Kisida and Patrick Wolf (2015), Customer Satisfaction and Educational Outcomes: Experimental Impacts of the Market-Based Delivery of Public Education, *International Public Management Journal*, 18(2), pp. 265–285, <https://dx.doi.org/10.1080/10967494.2014.996629>

Jonathan Butcher and Jason Bedrick (2013), *Schooling Satisfaction: Arizona Parents’ Opinions on Using Education Savings Accounts*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2013/10/SCHOOLING-SATISFACTION-Arizona-Parents-Opinions-on-Using-Education-Savings-Accounts-NEW.pdf>

James P. Kelly, III, and Benjamin Scafidi (2013), *More Than Scores: An Analysis of Why and How Parents Choose Private Schools*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/07/More-Than-Scores.pdf>

John F. Witte, Patrick J. Wolf, Joshua M. Cowen, David J. Fleming, and Juanita Lucas-McLean (2008), *MPCP Longitudinal Educational Growth Study: Baseline Report* (SCDP Milwaukee Evaluation Report 5), retrieved from University of Arkansas Department of Education Reform website: <http://www.uaedreform.org/downloads/2008/02/report-5-mpcp-longitudinal-educational-growth-study-baseline-report.pdf>

Jay P. Greene and Greg Forster (2003), *Vouchers for Special Education Students: An Evaluation of Florida’s McKay Scholarship Program* (Civic Report 38), retrieved from Manhattan Institute website: https://media4.manhattan-institute.org/pdf/cr_38.pdf

William G. Howell and Paul E. Peterson (2002), *The Education Gap: Vouchers and Urban Schools*, retrieved from <https://www.jstor.org/stable/10.7864/j.ctt128086>

Jay P. Greene (2001), Vouchers in Charlotte, *Education Matters*, 1(2), pp. 55–60, retrieved from Education Next Website: https://www.educationnext.org/files/ednext20012_46b.pdf

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Paul E. Peterson, William G. Howell, and Jay P. Greene (1999), *An Evaluation of the Cleveland Voucher Program After Two Years*, retrieved from Harvard University website: <https://sites.hks.harvard.edu/pepg/PDF/Papers/clev2ex.pdf>

Paul E. Peterson, David Myers, and William G. Howell (1999), *An Evaluation of the Horizon Scholarship Program in the Edgewood Independent School district, San Antonio, Texas: The First Year*, retrieved from Harvard University website: <https://sites.hks.harvard.edu/pepg/PDF/Papers/edge99.pdf>

Jay P. Greene, William G. Howell, and Paul E. Peterson (1998), Lessons from the Cleveland Scholarship Program, in Paul E. Peterson and Bryan C. Hassel (Eds.), *Learning from School Choice* (pp. 357–392), retrieved from <https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/5/539/files/2017/05/Lessons-10vatg9.pdf>

David J. Weinschrott and Sally B. Kilgore (1998), Evidence from the Indianapolis Voucher Program, in Paul E. Peterson and Bryan C. Hassel (Eds.), *Learning from School Choice* (pp. 307–334), retrieved from <https://books.google.com/books?id=138qI-WoYMYC&pg=PA307>

PUBLIC SCHOOL STUDENTS' TEST SCORES

These studies examine the competitive effects of private school choice programs on public school students. They study whether a private school choice program has an effect on the test scores of students who remain in public schools.

A concern often expressed when people hear about school vouchers is that these programs leave students who remain in public schools worse off. School choice programs might divert resources or the most capable students away from public schools, harming the children who are “left behind.” Have these fears come to pass? This section strives to answer that question.

Overall, fears of harm to public school students are overblown. In fact, there is compelling evidence that public school students experience modest test score gains after private school choice programs are introduced or expanded.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Public School Students' Test Scores	26	24	1	1

These studies examined nine voucher programs, one tax-credit scholarship program and one privately funded scholarship program across eight states and D.C. Of the 26 studies examining the effects of private school choice programs on public school test scores, 24 have found positive effects, one study found no visible effect and one study found negative effects.

About the Methods

We include studies that use nonexperimental methods given that no studies on competitive effects use random assignment.

An important concern with non-experimental methods is that public schools that face greater competitive pressure—more expansive private school choice programs—may be systematically different than public schools facing lesser competitive pressures—more limited private school choice programs. Researchers in these studies attempt to use statistical techniques to address these concerns.

There are several ways that researchers estimate the effects of private school choice programs on public school students' test scores.

For example, they may measure competition by estimating the percentage of students in a district or public school who are eligible for a choice program, with the idea being that public schools with a greater portion of students eligible for a program face greater competition because they stand to lose more students than if a smaller proportion of their students were eligible. They may also use distance measures in their models by measuring the proximity between a public school and the nearest private school. Some studies also employ density measures, which count the number of private schools within a given radius or distance from the public school.

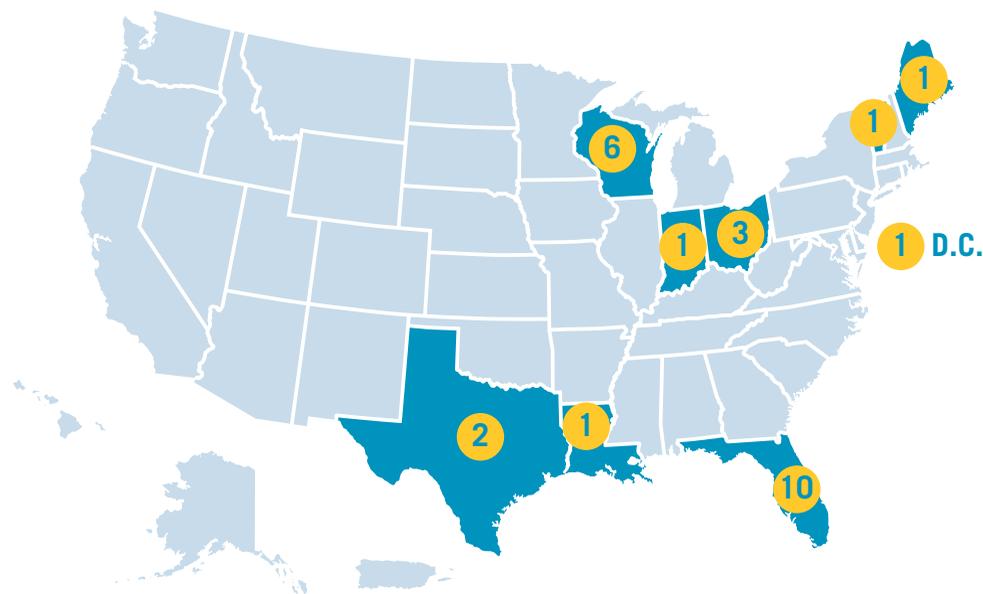
Public School Students' Test Scores from Empirical Studies

Author(s)	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
Egalite	Louisiana Scholarship Program	Louisiana	V	2016	✓		
Figlio and Karbownik	Educational Choice Scholarship Program	Ohio	V	2016	✓		
Bowen and Trivitt	Opportunity Scholarship Program*	Florida	V	2014			X
Jacob and Dougherty	Choice Scholarship Program	Indiana	V	2014	✓		
Chakrabarti	Opportunity Scholarship Program*	Florida	V	2013	✓		
Carr	Educational Choice Scholarship Program	Ohio	V	2011	✓		
Winters and Greene	John M. McKay Scholarships for Students with Disabilities Program	Florida	V	2011	✓		
Mader	Milwaukee Parental Choice Program	Milwaukee, WI	V	2010	✓		
Greene and Marsh	Milwaukee Parental Choice Program	Milwaukee, WI	V	2009	✓		
Chakrabarti	Milwaukee Parental Choice Program	Milwaukee, WI	V	2008	✓		
Forster	Educational Choice Scholarship Program	Ohio	V	2008	✓		
Forster	Opportunity Scholarship Program*	Florida	V	2008	✓		
Carnoy et al.	Milwaukee Parental Choice Program	Milwaukee, WI	V	2007	✓		
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	V	2007		○	
Figlio and Rouse	Opportunity Scholarship Program*	Florida	V	2006	✓		
West and Peterson	Opportunity Scholarship Program*	Florida	V	2006	✓		
Greene and Winters	Opportunity Scholarship Program*	Florida	V	2004	✓		
Greene and Forster	Milwaukee Parental Choice Program	Milwaukee, WI	V	2002	✓		
Hammons	Town Tuitioning Program	Maine	V	2002	✓		
Hammons	Town Tuitioning Program	Vermont	V	2002	✓		
Hoxby	Milwaukee Parental Choice Program	Milwaukee, WI	V	2002	✓		
Greene	Opportunity Scholarship Program*	Florida	V	2001	✓		
Figlio and Hart	Florida Tax Credit Scholarship Program	Florida	TCS	2014	✓		
Rouse et al.	Florida Tax Credit Scholarship Program	Florida	TCS	2013	✓		
Gray, Merrifield, and Adzima		San Antonio, TX	P	2016	✓		
Greene and Forster		San Antonio, TX	P	2002	✓		

V = Voucher ■ TCS = Tax-Credit Scholarship ■ P = Private Scholarship

*The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.
 Note: This table shows all empirical studies using all methods.

Number of Studies on Public School Students' Test Scores by Location



Additional Research Context

Several systematic reviews have been conducted to synthesize the competitive effects literature for private school choice programs. All of these systematic reviews acknowledge that private school choice programs tend to induce public schools to improve. The body of evidence suggests that improvement increases with the intensity of competition.

Dennis Epple and colleagues state that “evidence on both small-scale and large-scale programs suggests that competition induced by vouchers leads public schools to improve.”¹³

Patrick Wolf and Anna Egalite examine research on competition in the K–12 system and note that the literature “suggest that growing educational competition from charter schools, vouchers, and tax-credit scholarship programs holds the promise of improving the productivity of district schools, subject to the effective design of school choice policies.”¹⁴ They also note, in a separate study, “Students who remain in public schools that faced competition from choice programs tend to score higher on standardized tests, especially if the threat of competition is large.”¹⁵

Egalite found “neutral to positive results” in her own review of the competitive effects literature.¹⁶ She

also notes that results from studies able to use a quasi-experimental method (regression discontinuity) “unanimously find positive impacts on student academic achievement.”¹⁷ Furthermore, she states, “Such overwhelming evidence supports the development of market-based schooling policies as a means to increase student achievement in traditional public schools.”¹⁸

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Anna J. Egalite (2016), *The Competitive Effects of the Louisiana Scholarship Program on Public School Performance* (Louisiana Scholarship Program Evaluation Report 4), <https://dx.doi.org/10.2139/ssrn.2739783>

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Nicholas S. Mader (2010), *School Choice, Competition and Academic Quality: Essays on the Milwaukee Parental Choice Program* (Doctoral dissertation), retrieved from ProQuest (3424049)

Jay P. Greene and Ryan H. Marsh (2009), *The Effect of Milwaukee's Parental Choice Program on Student Achievement in Milwaukee Public Schools* (SCDP Comprehensive Longitudinal Evaluation of the Milwaukee Parental Choice Program Report 11), retrieved from University of Arkansas Department of Education Reform website: <http://www.uaedreform.org/downloads/2009/03/report-11-the-effect-of-milwaukees-parental-choice-program-on-student-achievement-in-milwaukee-public-schools.pdf>

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Greg Forster (2008), *Promising Start: An Empirical Analysis of How EdChoice Vouchers Affect Ohio Public Schools*, School Choice Issues in the State, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/09/Promising-Start-How-EdChoice-Vouchers-Affect-Ohio-Public-Schools.pdf>

Martin Carnoy, Frank Adamson, Amita Chudgar, Thomas F. Luschei, and John F. Witte (2007), *Vouchers and Public School Performance: A Case Study of the Milwaukee Parental Choice Program*, retrieved from Economic Policy Institute website: https://www.epi.org/publication/book_vouchers

David N. Figlio and Cecilia E. Rouse (2006), Do Accountability and Voucher Threats Improve Low-Performing Schools?, *Journal of Public Economics*, 90(1–2), pp. 239–255, <https://dx.doi.org/10.1016/j.jpubeco.2005.08.005>

Jay P. Greene and Marcus A. Winters (2007), An Evaluation of the Effect of DC's Voucher Program on Public School Achievement and Racial Integration After One Year, *Journal of Catholic Education*, 11(1), pp. 83–101, <http://dx.doi.org/10.15365/joce.1101072013>

Martin R. West and Paul E. Peterson (2006), The Efficacy of Choice Threats within School Accountability Systems: Results from Legislatively Induced Experiments, *Economic Journal*, 116(510), pp. C46–C62, <http://dx.doi.org/10.1111/j.1468-0297.2006.01075.x>

Jay P. Greene and Marcus A. Winters (2004), Competition Passes the Test, *Education Next*, 4(3), pp. 66–71, retrieved from https://www.educationnext.org/files/ednext20043_66.pdf

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CIVIC VALUES AND PRACTICES

Instilling common democratic and civic values is a core purpose and argument for the public funding of K-12 education. The United States is also becoming increasingly diverse with each oncoming generation of Americans. Historically, elementary and secondary schools have had an important role leveling the playing field for students when it comes to socialization around shared civic values and activities.

The research on private school choice programs point to a track record indicating that these programs can, in fact, help establish and strengthen civic norms and practices. They are foundational to sustaining good citizenship, civil society and representative democracy in our country.

Studies examined in this section analyze whether enrolling in a private school choice program has an effect on students' civic values or how students exhibit civic practices. Such values and practices include: tolerance for the rights of others, civic knowledge, civic participation, volunteerism, social capital, civic skills, voter registration, voter turnout and patriotism. Studies that assess criminal activity tendencies are also considered for this section.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Civic Values and Practices	11	6	5	0

These studies examined two voucher programs and at least three privately funded scholarship programs across five states. Of the 11 studies examining the effects of private school choice programs on public school test scores, six have found positive effects, five studies have found no visible effect, and zero studies found negative effects.

About the Methods

To examine how private schools in choice programs differ from public schools, if at all, in promoting civic values in their students, researchers rely primarily on survey methods. They compare measured outcomes between students participating in private school choice programs and similar students in public schools. Some studies of programs compared students who applied to programs and were randomly assigned via lottery to treatment and control groups.

Studies researching tolerance observe the effect of students' tolerance for others before and after using school choice, largely via survey questionnaires that gauge whether students recognize the views and rights of groups for which they disagree. Tolerance is defined as a willingness to extend legal protections to groups with whom one has disagreements. Civic engagement includes measures such as political participation, voting, giving to charity and volunteering.

For the purposes of reporting civic outcomes, we consider only the voucher and private scholarship participants' effects. This review includes random assignment and nonexperimental studies.

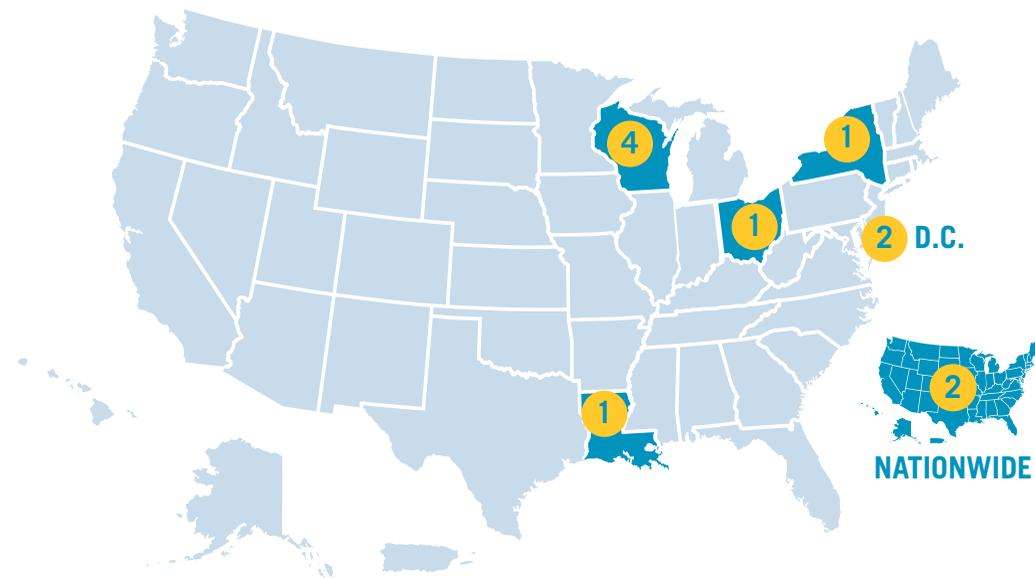
Civic Values and Practices from All Empirical Studies

Authors	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	V	2019	✓		
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	V	2018		○	
Mills et al.	Louisiana Scholarship Program	Louisiana	V	2016		○	
Fleming, Mitchell, and McNally	Milwaukee Parental Choice Program	Milwaukee, WI	V	2014	✓		
Fleming	Milwaukee Parental Choice Program	Milwaukee, WI	V	2014	✓		
Carlson, Chingos, and Campbell		New York, NY	P	2017		○	
Campbell		Nationwide	P	2008	✓		
Bettinger and Slonim		Toledo, OH	P	2006	✓		
Howell and Peterson		Washington, D.C.	P	2006		○	
Peterson and Campbell		Nationwide	P	2001		○	
Wolf, Peterson, and West		Washington, D.C.	P	2001	✓		

V = Voucher | P = Private Scholarship

Note: This table shows all empirical studies using all methods.

Number of Studies on Civic Values and Practices by Location



Though we might want to separate social order and criminal activity studies into their own section in the future, only one such study exists to date, so this research area has been consolidated into this section. This study matched students who participated in Milwaukee’s voucher program with students in the Milwaukee Public School district and examined whether students who used vouchers were more likely to engage in criminal activity compared to their matched peers.

Additional Research Context

Corey DeAngelis published a systematic review of the civic effects of school choice programs in 2017. While others have compiled civic outcomes research of other types of schooling, including charter schools, DeAngelis’s review is the only one that exclusively examines private school choice. He found generally null to positive results of private school choice programs on students’ tolerance, null to positive results for civic engagement and positive results for social order. For social order, the author reviewed studies that examine the levels of criminal activity of school choice participants.¹⁹

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Corey A. DeAngelis and Patrick J. Wolf (2019), *Private School Choice and Character: Evidence from Milwaukee* (EDRE Working Paper 2019-03), <https://dx.doi.org/10.2139/ssrn.3335162>

Corey A. DeAngelis and Patrick J. Wolf (2018), *Will Democracy Endure Private School Choice? The Effect of the Milwaukee Parental Choice Program on Adult Voting Behavior*, <https://dx.doi.org/10.2139/ssrn.3177517>

Deven Carlson, Matthew M. Chingos, and David E. Campbell (2017), The Effect of Private School Vouchers on Political Participation, *Journal of Research on Educational Effectiveness*, 10(1), pp. 545–569, <https://dx.doi.org/10.1080/19345747.2016.1256458>

Jonathan N. Mills, Albert Cheng, Collin E. Hitt, Patrick J. Wolf, and Jay P. Greene (2016), *Measures of Student Non-Cognitive Skills and Political Tolerance After Two Years of the Louisiana Scholarship Program* (Louisiana Scholarship Program Evaluation Report 2), <https://dx.doi.org/10.2139/ssrn.2738782>

David J. Fleming (2014), Learning from Schools: School Choice, Political Learning, and Policy Feedback, *Policy Studies Journal*, 42(1), pp. 55–78, <https://dx.doi.org/10.1111/psj.12042>

David J. Fleming, William Mitchell, and Michal McNally (2014), Can Markets Make Citizens? School Vouchers, Political Tolerance, and Civic Engagement, *Journal of School Choice*, 8(2), pp. 213–236, <https://dx.doi.org/10.1080/15582159.2014.905397>

David E. Campbell (2008), The Civic Side of School Choice: An Empirical Analysis of Civic Education in Public and Private Schools, *Brigham Young University Law Review*, 2008(2), pp. 487–523, retrieved from <https://digitalcommons.law.byu.edu/lawreview/vol2008/iss2/11>

Eric Bettinger and Robert Slonim (2006), Using Experimental Economics to Measure the Effects of a Natural Educational Experiment on Altruism, *Journal of Public Economics*, 90(8–9), pp. 1625–1648, <https://dx.doi.org/10.1016/j.jpubeco.2005.10.006>

William G. Howell and Paul E. Peterson, (2006), *The Education Gap: Vouchers and Urban Schools*, revised edition, retrieved from <https://books.google.com/books?id=lAzmJs8i-rUC>

Paul E. Peterson and David E. Campbell (2001), *An Evaluation of the Children's Scholarship Fund* (PEPG 01-03), retrieved from Harvard University website: <https://sites.hks.harvard.edu/pepg/PDF/Papers/CSF%20Report%202001.pdf>

Patrick J. Wolf, Paul E. Peterson, and Martin R. West (2001), *Results of a School Voucher Experiment: The Case of Washington, D.C. after Two Years* (PEPG 01-05), retrieved from <https://files.eric.ed.gov/fulltext/ED457272.pdf>



RACIAL / ETHNIC INTEGRATION

Measuring school choice's impact on integration is both challenging and very important. Research in this area is essential because of the longstanding history and concern about segregation in America's public and private schools.

It is important to keep in mind that the public education system in the U.S. has led to significantly greater sorting across schools by family income level, documented by Ann Owens, Sean Reardon and Christopher Jencks.²⁰ Further, Benjamin Scafidi showed how racial sorting in public schools has increased or lagged improvements in neighborhood integration over the past few decades.²¹ Given the strong link between neighborhoods and residential assignment, the pattern that neighborhoods have become more integrated while public schools have become more segregated is puzzling. Better understanding if increasing educational choice facilitates integration in schools or weakens it is a worthy endeavor.

There has been substantial difficulty determining what it means for a school to become more or less integrated because it is not clear to what standard it should be held. Is a school integrated when it matches the demographic characteristics of its neighborhood? The city in which it sits? The county? The state? This matters because, as Gary Ritter, Nathan Jensen, Brian Kisida and Joshua McGee showed, picking different comparison groups can yield completely different findings.²²

But it doesn't stop there. When a student moves from one school to another, he or she affects the racial composition of both the school he or she left and the school he or she joined. From whose perspective should we view this? Is it positive when a student has the opportunity to attend a more integrated school? What about the experience of the children left behind? Similarly, if the student goes to a more segregated school, that movement could make their old school more integrated. What is a "positive" finding in this scenario?

If that is not enough, researchers can usually look only at school-level segregation. But what happens once a student walks through the school doors? Are classrooms integrated, or are children of different races tracked into different courses? Is the lunchroom? Are extra-curricular activities? Conceivably a putatively "integrated" school could still be segregated in practice. Data alone simply can't sufficiently answer these research questions.

In this section, we consider studies that examine the effect of school choice programs on racial and ethnic diversity in public and private schools. Since the late 1990s researchers have analyzed the impacts of school voucher programs in this area.

Because researchers' methods vary, we advise some caution to readers of this section and encourage further exploration of the individual studies. We have endeavored to be as transparent as possible as to how the researchers chose to cope with the above questions. That said, the body of the research to date indicates that existing choice programs are promoting integration.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Racial/Ethnic Integration	7	6	1	0

These studies examined four voucher programs across three states and D.C. Of the seven studies examining school choice's effect on integration in schools, six found positive effects. One was unable to detect any effects, and none found negative effects.

About the Methods

This section considers studies that employ a variety of methods. Most studies employ methods yielding results that are descriptive in nature. These measures of integration compare the following:

- the racial/ethnic composition of public and private schools and the racial/ethnic composition of the choice program's metropolitan area
- the racial/ethnic composition of public and private schools before and after the introduction or expansion of a choice program
- the racial/ethnic composition of public and private schools, assuming choice students had enrolled in their district schools instead
- the racial/ethnic composition of classrooms in public and private schools compared with the racial composition of the nation's general population
- the shares of public and private schools that are racially homogenous (usually defined as a school with at least 90 percent of student enrollment that is white or minority)

Methods that move a step closer to providing causal evidence employ student-level data over time and identify the effect that choice program participants had on the racial/ethnic composition of their originating and receiving schools after participating in the choice program. The table on page 46 depicts the four possible outcomes.

A transfer that results in both schools becoming more integrated is considered positive while a transfer that leaves both schools less integrated is considered negative. Two of these effects are mixed (i.e., when a student transfers, either the originating or receiving school becomes more integrated while the other school becomes less integrated.)

We include only studies of private school choice programs in the United States, both publicly funded and privately funded. Given that no studies on integration effects use random assignment, we include studies that use nonexperimental methods. We include empirical studies only and do not include simulation studies.

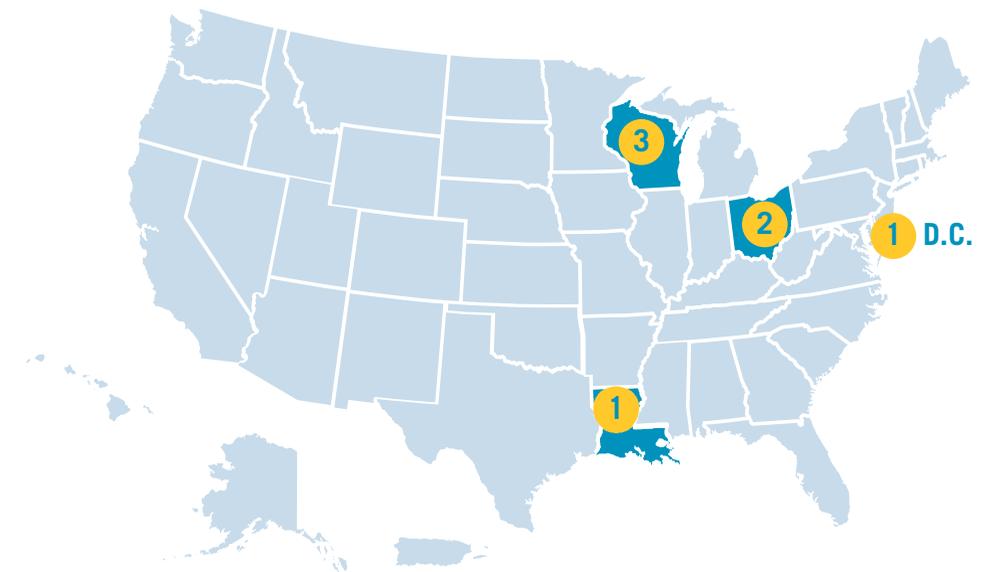
Integration Effects, Possible Outcomes After Student Transferred Via School Choice Program

	Receiving school became MORE integrated	Receiving school became LESS integrated
Originating school became MORE integrated	Positive	Mixed
Originating school became LESS integrated	Mixed	Negative

Additional Research Context

Elise Swanson surveyed the literature on the effects of various school choice sectors (magnet, charters, and private) on integration in schools. In her review of studies on voucher programs, she reviewed eight studies, finding that seven studies found voucher programs improved school integration and one study was unable to detect any effects. She notes that “it is perhaps unsurprising that traditional public schools exhibit, to this day, high levels of racial segregation, and that choice programs, including vouchers, that decouple the link between address and school actually increase racial integration.”²³

Number of Studies on Racial Integration by Location



Racial Integration from All Empirical Studies

Author(s)	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
Egalite, Mills, and Wolf	Louisiana Scholarship Program	Louisiana	V	2017	✓		
Greene, Mills, and Buck	Milwaukee Parental Choice Program	Milwaukee, WI	V	2010		○	
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	V	2007	✓		
Forster	Milwaukee Parental Choice Program	Milwaukee, WI	V	2006	✓		
Forster	Cleveland Scholarship Program	Cleveland, OH	V	2006	✓		
Fuller and Mitchell	Milwaukee Parental Choice Program	Milwaukee, WI	V	2000	✓		
Greene	Cleveland Scholarship Program	Cleveland, OH	V	1999	✓		

V = Voucher

Notes: This table shows all empirical studies using all methods; the total effect on segregation in all schools is referenced. Table excludes studies that do not adequately define segregation or fail to make appropriate comparisons. For example, comparing the racial makeup of a given school to the makeup of a larger administrative unit such as a school district or municipality can be misleading and fails to directly measure the effect of introducing a private school choice program.

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Anna J. Egalite, Jonathan N. Mills, and Patrick J. Wolf (2017), The Impact of Targeted School Vouchers on Racial Stratification in Louisiana Schools, *Education and Urban Society*, 49(3), pp. 271–296, <https://dx.doi.org/10.1177/0013124516643760>

Jay P. Greene, Jonathan N. Mills, and Stuart Buck (2010), *The Milwaukee Parental Choice Program’s Effect on School Integration* (School Choice Demonstration Project Report 20), retrieved from University of Arkansas Department of Education Reform website: <http://www.uaedreform.org/downloads/2010/04/report-20-the-milwaukee-parental-choice-programs-effect-on-school-integration.pdf>

Jay P. Greene and Marcus A. Winters (2007), An Evaluation of the Effect of DC’s Voucher Program on Public School Achievement and Racial Integration After One Year, *Journal of Catholic Education*, 11(1), pp. 83–101, <http://dx.doi.org/10.15365/joce.1101072013>

Greg Forster (2006), *Segregation Levels in Cleveland Public Schools and the Cleveland Voucher Program*, School Choice Issues in the State, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/09/Segregation-Levels-in-Cleveland-Public-Schools-and-the-Cleveland-Voucher-Program.pdf>

Greg Forster (2006), *Segregation Levels in Milwaukee Public Schools and the Milwaukee Voucher Program*, School Choice Issues in the State, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/09/Segregation-Levels-in-Milwaukee-Public-Schools-and-the-Milwaukee-Voucher-Program.pdf>

Howard L. Fuller and George A. Mitchell (2000), *The Impact of School Choice on Integration in Milwaukee Private Schools*, Current Education Issues 2000-02, retrieved from <https://files.eric.ed.gov/fulltext/ED443939.pdf>

Jay P. Greene, (1999), *Choice and Community: The Racial, Economic and Religious Context of Parental Choice in Cleveland*, retrieved from <https://files.eric.ed.gov/fulltext/ED441928.pdf>

FISCAL EFFECTS

These studies examine the fiscal effect of private school choice programs on taxpayers, state budgets and public school districts. In terms of the number of analyses conducted on private school choice programs, fiscal effects have been studied most.

One of the most common criticisms levied against school choice is that these programs “drain” or “siphon” resources from public schools. A recent national survey by Paul DiPerna and Michael Shaw found that 27 percent of respondents opposed to ESAs indicated that diverting funding away from public schools is the most important reason for their opposition.²⁴ In light of such concerns, policymakers often want to better understand the fiscal impacts of these programs.

Assessing the fiscal impact of a school choice program is complicated because school funding comes from several different sources (federal, state and local governments) and because school funding formulas themselves are exceedingly complex. It is important when there are costs or savings to identify to whom they are accruing.

There is a second issue at work that deserves deeper scrutiny as well. When it comes to how much these programs cost taxpayers and their potential effects on school districts, some tend to focus on the price tag of scholarships awarded via private school choice programs. What they tend to ignore, however, is that there are cost savings associated with students who leave the public K–12 system. That is, when students leave their public school by using vouchers, that public school gets a reduction in funding. That school also has a reduction in educational costs, as it has fewer students to educate.

The body of fiscal analyses on private school choice programs examined in this section generally find that private school choice programs generate positive fiscal benefits for taxpayers and school districts.

Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Fiscal Effects	50	45	4	1

Analyses reviewed here cover 20 voucher programs, 11 tax-credit scholarship programs and one privately funded scholarship program across 18 states and D.C. Of 50 studies on the fiscal effects of private school choice programs, 45 found that programs generated net savings for taxpayers. Four found those programs were cost-neutral, and one study estimated that a program generated net costs.

Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies

Author(s)	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
Lueken	Opportunity Scholarship Program	Washington, D.C.	V	2018	✓		
Lueken	John M. McKay Scholarships for Students with Disabilities Program	Florida	V	2018	✓		
Lueken	Georgia Special Needs Scholarship Program	Georgia	V	2018	✓		
Lueken	Choice Scholarship Program	Indiana	V	2018	✓		
Lueken	Louisiana Scholarship Program	Louisiana	V	2018	✓		
Lueken	School Choice Program for Certain Students with Exceptionalities	Louisiana	V	2018			X
Lueken	Mississippi Dyslexia Therapy Scholarship for Students with Dyslexia Program	Mississippi	V	2018	✓		
Lueken	Cleveland Scholarship Program	Cleveland, OH	V	2018	✓		
Lueken	Autism Scholarship Program	Ohio	V	2018	✓		
Lueken	Educational Choice Scholarship Program	Ohio	V	2018	✓		
Lueken	Jon Peterson Special Needs Scholarship Program	Ohio	V	2018	✓		
Lueken	Lindsey Nicole Henry Scholarships for Students with Disabilities	Oklahoma	V	2018	✓		
Lueken	Carson Smith Special Needs Scholarship Program	Utah	V	2018	✓		
Lueken	Milwaukee Parental Choice Program	Milwaukee, WI	V	2018	✓		
Lueken	Parental Private School Choice Program (Racine)	Racine, WI	V	2018	✓		
Trivitt and DeAngelis	Succeed Scholarship Program	Arkansas	V	2018	✓		
Wisconsin LAB*	Special Needs Scholarship Program	Wisconsin	V	2018		○	
DeAngelis and Trivitt	Louisiana Scholarship Program	Louisiana	V	2016	✓		
Trivitt and DeAngelis	Louisiana Scholarship Program	Louisiana	V	2016	✓		
Spalding	Opportunity Scholarship Program†	Florida	V	2014	✓		
Wolf and McShane	Opportunity Scholarship Program	Washington, D.C.	V	2013	✓		
Costrell	Milwaukee Parental Choice Program	Milwaukee, WI	V	2010	✓		
Aud	Town Tuitioning Program	Vermont	V	2007		○	
Aud	Town Tuitioning Program	Maine	V	2007		○	
Aud	John M. McKay Scholarships for Students with Disabilities Program	Florida	V	2007	✓		
Aud	Opportunity Scholarship Program†	Florida	V	2007	✓		
Aud	Opportunity Scholarship Program	Washington, D.C.	V	2007	✓		
Aud	Cleveland Scholarship Program	Cleveland, OH	V	2007	✓		
Aud	Autism Scholarship Program	Ohio	V	2007	✓		
Aud	Carson Smith Special Needs Scholarship Program	Utah	V	2007		○	
Aud	Milwaukee Parental Choice Program	Milwaukee, WI	V	2007	✓		
Aud and Michos	Opportunity Scholarship Program	Washington, D.C.	V	2006	✓		

V = Voucher

*State of Wisconsin Legislative Audit Bureau

†The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.

Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies (continued)

Author(s)	Program Name	Location	Program Type	Year	Results		
					Any Positive Effect	No Visible Effect	Any Negative Effect
Dearmon and Evans	Oklahoma Equal Opportunity Education Scholarships	Oklahoma	TCS	2018	✓		
Lueken	Original Individual Income Tax Credit Scholarship Program	Arizona	TCS	2018	✓		
Lueken	Low-Income Corporate Income Tax Credit Scholarship Program	Arizona	TCS	2018	✓		
Lueken	Lexie's Law for Disabled and Displaced Students Tax Credit Scholarship Program	Arizona	TCS	2018	✓		
Lueken	"Switcher" Individual Income Tax Credit Scholarship Program	Arizona	TCS	2018	✓		
Lueken	Florida Tax Credit Scholarship Program	Florida	TCS	2018	✓		
Lueken	Qualified Education Expense Tax Credit	Georgia	TCS	2018	✓		
Lueken	School Scholarship Tax Credit	Indiana	TCS	2018	✓		
Lueken	School Tuition Organization Tax Credit	Iowa	TCS	2018	✓		
Lueken	Educational Improvement Tax Credit Program	Pennsylvania	TCS	2018	✓		
Lueken	Tax Credits for Contributions to Scholarship Organizations	Rhode Island	TCS	2018	✓		
Girardi and Gullickson	School Tuition Organization Tax Credit	Iowa	TCS	2017	✓		
LOEDR‡	Florida Tax Credit Scholarship Program	Florida	TCS	2012	✓		
OPPAGA§	Florida Tax Credit Scholarship Program	Florida	TCS	2008	✓		
Aud	Original Individual Income Tax Credit Scholarship Program	Arizona	TCS	2007	✓		
Aud	Educational Improvement Tax Credit Program	Pennsylvania	TCS	2007	✓		
Aud	Florida Tax Credit Scholarship Program	Florida	TCS	2007	✓		
Merrifield & Gray		San Antonio, TX	P	2009	✓		

TCS = Tax-Credit Scholarship | P = Private Scholarship

*State of Wisconsin Legislative Audit Bureau

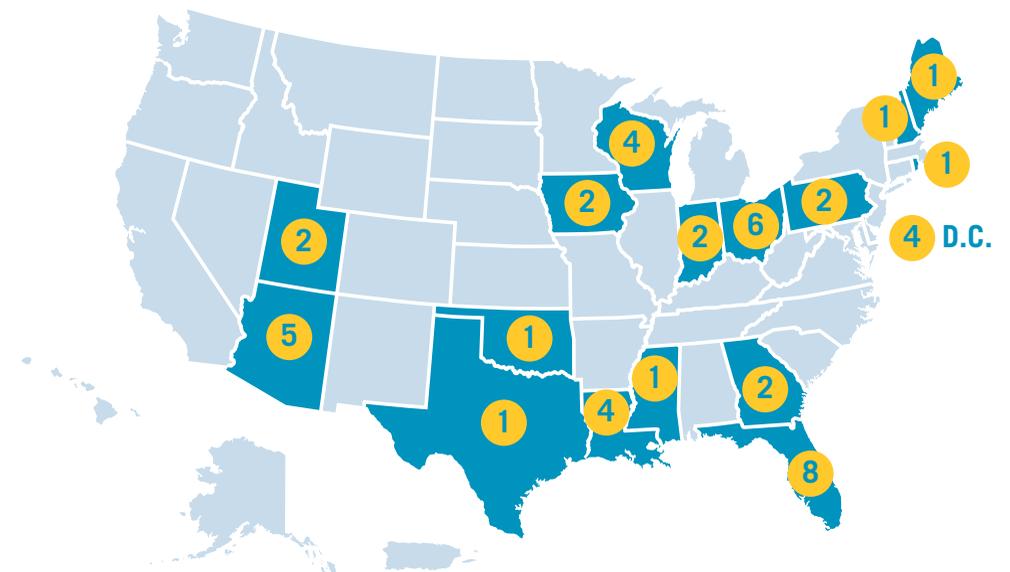
†The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.

‡LOEDR stands for Legislative Office of Economic and Demographic Research (State of Florida)

§OPPAGA stands for Office of Program Policy Analysis and Government Accountability (State of Florida)

Notes: This table shows all empirical studies using all methods; the total fiscal effect of school choice programs is referenced. Table excludes any analyses that fail to make a reasonable attempt to account for both sides of the ledger, i.e. both costs and savings from school choice programs.

Number of Studies on Fiscal Effects on Taxpayers and Public Schools by Location



About the Methods

Researchers and fiscal analysts have employed a variety of accounting techniques to estimate the fiscal effects of private school choice programs on different groups. Any fiscal analysis should account for switchers, or students who would likely enroll in a public school if they did not receive any financial assistance from the choice program. It is not accurate to assume that all students using school choice programs would attend private schools even without access to the program.

Because it is impossible to know with complete certainty whether students are switchers, some analyses also report “break-even switcher rates” for programs, or the share of program participants who must be switchers for a program to be cost-neutral. Break-even switcher rates are intended to give policymakers a general sense about a program’s fiscal impact, i.e., if it is likely to generate net savings or costs.

We review all fiscal analyses of operational U.S. school choice programs—both publicly funded and privately funded—that make a reasonable attempt to account for both costs and savings associated with switchers. We exclude any analyses that report estimates only for the cost of scholarship. We do not consider fiscal analyses of school choice bills, such as legislative fiscal notes.

Citations of Studies in Summary Table

Listed in chronological order, starting with most recent

Jacob Dearmon and Russell Evans (2018), *Fiscal Impact Analysis of the Oklahoma Equal Opportunity Scholarship Tax Credit*, retrieved from Oklahoma City University website: <https://www.okcu.edu/uploads/business/docs/Scholarship-Tuition-Tax-Credit-FY-2017-Fiscal-Impact-Report.pdf>

Martin F. Lueken (2018), *Fiscal Effects of School Vouchers: Examining the Savings and Costs of America’s Private School Voucher Programs*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2018/09/Fiscal-Effects-of-School-Vouchers-by-Martin-Lueken.pdf>

Martin F. Lueken (2018), The Fiscal Effects of Tax-Credit Scholarship Programs in the United States, *Journal of School Choice*, 12(2), pp. 181–215, <https://dx.doi.org/10.1080/15582159.2018.1447725>

Julie R. Trivitt and Corey A. DeAngelis (2018), State-Level Fiscal Impact of the Succeed Scholarship Program 2017-2018, *Arkansas Education Reports*, 15(1), pp. 1–21, retrieved from <http://scholarworks.uark.edu/oepreport/1>

Wisconsin Legislative Audit Bureau (2018), *Special Needs Scholarship Program: Department of Public Instruction* (Report 18-6), retrieved from <https://legis.wisconsin.gov/lab/media/2753/18-6full.pdf>

Anthony G. Girardi and Angela Gullickson (2017), *Iowa’s School Tuition Organization Tax Credits Program Evaluation Study*, retrieved from Iowa Department of Revenue website: <https://tax.iowa.gov/sites/files/idr/2017%20STO%20Tax%20Credit%20Evaluation%20Study%20%281%29.pdf>

Corey A. DeAngelis and Julie R. Trivitt (2016), *Squeezing the Public School Districts: The Fiscal Effects of Eliminating the Louisiana Scholarship Program* (EDRE Working Paper 2016-10), retrieved from University of Arkansas Department of Education Reform website: <http://www.uaedreform.org/downloads/2016/08/squeezing-the-public-school-districts-the-fiscal-effects-of-eliminating-the-louisiana-scholarship-program.pdf>

Julie R. Trivitt and Corey A. DeAngelis (2016), *The Fiscal Effect of Eliminating the Louisiana Scholarship Program on State Education Expenditures* (EDRE Working Paper 2016-06), <https://dx.doi.org/10.2139/ssrn.2768956>

Jeff Spalding (2014), *The School Voucher Audit: Do Publicly Funded Private School Choice Programs Save Money?*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/07/The-School-Voucher-Audit-Do-Publicly-Funded-Private-School-Choice-Programs-Save-Money.pdf>

Patrick J. Wolf and Michael McShane (2013), Is the Juice Worth the Squeeze? A Benefit/Cost Analysis of the District of Columbia Opportunity Scholarship Program, *Education Finance and Policy*, 8(1), pp. 74–99, https://dx.doi.org/10.1162/EDFP_a_00083

Office of Economic and Demographic Research (2012), *Revenue Estimating Conference*, retrieved from <http://www.edr.state.fl.us/Content/conferences/revenueimpact/archives/2012/pdf/page540-546.pdf>

Robert M. Costrell (2010), *The Fiscal Impact of the Milwaukee Parental Choice Program: 2010-2011 Update and Policy Options* (SCDP Milwaukee Evaluation Report 22), retrieved from University of Arkansas Department of Education Reform website: <http://www.uaedreform.org/downloads/2011/03/report-22-the-fiscal-impact-of-the-milwaukee-parental-choice-program-2010-2011-update-and-policy-options.pdf>

John Merrifield and Nathan L. Gray (2009), An Evaluation of the CEO Horizon, 1998–2008, Edgewood Tuition Voucher Program, *Journal of School Choice*, 3(4), pp. 414–415, <https://dx.doi.org/10.1080/15582150903430764>

OPPAGA (2008), *The Corporate Tax Credit Scholarship Program Saves State Dollars* (Report 08-68), retrieved from <http://www.oppaga.state.fl.us/reports/pdf/0868rpt.pdf>

Susan L. Aud (2007), *Education by the Numbers: The Fiscal Effect of School Choice Programs, 1990-2006, School Choice Issues in Depth*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/09/Education-by-the-Numbers-Fiscal-Effect-of-School-Choice-Programs.pdf>

Susan L. Aud and Leon Michos (2006), *Spreading Freedom and Saving Money: The Fiscal Impact of the D.C. Voucher Program*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/09/Spreading-Freedom-and-Saving-Money-The-Fiscal-Impact-of-the-DC-Voucher-Program.pdf>

RESEARCH STUDIES BY PROGRAM TYPE

Research Studies on ESA Programs

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Parent Satisfaction Impacts from Private Educational Choice Programs						
Kittredge	Equal Opportunity for Students with Special Needs Program	Mississippi	2016	✓		
Butcher and Bedrick	Empowerment Scholarship Accounts	Arizona	2013	✓		

Research Studies on Voucher Programs

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Test Score Outcome of Participants from Random Assignment Studies						
Abdulkadiroglu, Pathak, and Walters	Louisiana Scholarship Program	Louisiana	2018			X
Dynarski et al.	Opportunity Scholarship Program	Washington, D.C.	2018			X
Mills and Wolf	Louisiana Scholarship Program	Louisiana	2017	✓	○	X
Wolf et al.	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
Greene, Peterson, and Du	Milwaukee Parental Choice Program	Milwaukee, WI	1999	✓		
Rouse	Milwaukee Parental Choice Program	Milwaukee, WI	1998	✓		
Attainment Outcomes of Participants from All Empirical Studies						
Chingos	Opportunity Scholarship Program	Washington, D.C.	2018		○	
Erickson, Mills, and Wolf	Louisiana Scholarship Program	Louisiana	2018		○	
Wolf, Witte, and Kisida	Milwaukee Parental Choice Program	Milwaukee, WI	2018	✓		
Wolf et al.	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
Parent Satisfaction Impacts from Private Educational Choice Programs						
Department of Public Instruction	Special Needs Scholarship Program	Wisconsin	2018	✓		
Catt and Rhinesmith	Choice Scholarship Program	Indiana	2017	✓		
Egalite, Gray, and Stallings	Opportunity Scholarships	North Carolina	2017	✓		
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2016	✓		
Kisida and Wolf	Opportunity Scholarship Program	Washington, D.C.	2015	✓		
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2014	✓		
Witte et al.	Milwaukee Parental Choice Program	Milwaukee, WI	2008	✓		
Greene and Forster	John M. McKay Scholarships for Students with Disabilities Program	Florida	2003	✓		
Witte	Milwaukee Parental Choice Program	Milwaukee, WI	2000	✓		
Metcalfe	Cleveland Scholarship Program	Cleveland, OH	1999	✓		
Peterson, Howell, and Greene	Milwaukee Parental Choice Program	Milwaukee, WI	1999	✓		
Greene, Howell, and Peterson	Cleveland Scholarship Program	Cleveland, OH	1998	✓		

*The report combined voucher and tax-credit scholarship parents into "Choice Parents," although anyone could calculate voucher and tax-credit scholarship results based on data tables in the report appendices.

†The report combined voucher and tax-credit scholarship parents into "Choice Parents" for all information made publicly available.

Research Studies on Voucher Programs (continued)

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Parent Satisfaction Impacts from Private Educational Choice Programs (continued)						
Egalite	Louisiana Scholarship Program	Louisiana	2016	✓		
Figlio and Karbownik	Educational Choice Scholarship Program	Ohio	2016	✓		
Bowen and Trivitt	Opportunity Scholarship Program‡	Florida	2014			X
Jacob and Dougherty	Choice Scholarship Program	Indiana	2014	✓		
Chakrabarti	Opportunity Scholarship Program‡	Florida	2013	✓		
Carr	Educational Choice Scholarship Program	Ohio	2011	✓		
Winters and Greene	John M. McKay Scholarships for Students with Disabilities Program	Florida	2011	✓		
Mader	Milwaukee Parental Choice Program	Milwaukee, WI	2010	✓		
Greene and Marsh	Milwaukee Parental Choice Program	Milwaukee, WI	2009	✓		
Chakrabarti	Milwaukee Parental Choice Program	Milwaukee, WI	2008	✓		
Chakrabarti	Opportunity Scholarship Program‡	Florida	2008	✓		
Forster	Educational Choice Scholarship Program	Ohio	2008	✓		
Forster	Opportunity Scholarship Program‡	Florida	2008	✓		
Carnoy et al.	Milwaukee Parental Choice Program	Milwaukee, WI	2007	✓		
Figlio and Rouse	Opportunity Scholarship Program‡	Florida	2006	✓		
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	2006		○	
West and Peterson	Opportunity Scholarship Program‡	Florida	2006	✓		
Chakrabarti	Opportunity Scholarship Program‡	Florida	2004	✓		
Greene and Winters	Opportunity Scholarship Program‡	Florida	2004	✓		
Greene and Forster	Milwaukee Parental Choice Program	Milwaukee, WI	2002	✓		
Hammons	Town Tuitioning Program	Maine	2002	✓		
Hammons	Town Tuitioning Program	Vermont	2002	✓		
Hoxby	Milwaukee Parental Choice Program	Milwaukee, WI	2002	✓		
Greene	Opportunity Scholarship Program‡	Florida	2001	✓		

‡The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.

Research Studies on Voucher Programs (continued)

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Civic Values and Practices from All Empirical Studies						
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	2019	✓		
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	2018		○	
Mills et al.	Louisiana Scholarship Program	Louisiana	2016		○	
Fleming, Mitchell, and McNally	Milwaukee Parental Choice Program	Milwaukee, WI	2014	✓		
Fleming	Milwaukee Parental Choice Program	Milwaukee, WI	2014	✓		
Racial Integration from All Empirical Studies						
Egalite, Mills, and Wolf	Louisiana Scholarship Program	Louisiana		✓		
Greene, Mills, and Buck§	Milwaukee Parental Choice Program	Milwaukee, WI	2010		○	
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	2007	✓		
Forster	Milwaukee Parental Choice Program	Milwaukee, WI	2006	✓		
Forster	Cleveland Scholarship Program	Cleveland, OH	2006	✓		
Fuller and Mitchell	Milwaukee Parental Choice Program	Milwaukee, WI	2000	✓		
Greene	Cleveland Scholarship Program	Cleveland, OH	1999	✓		
Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies						
Lueken	Opportunity Scholarship Program	Washington, D.C.	2018	✓		
Lueken	John M. McKay Scholarships for Students with Disabilities Program	Florida	2018	✓		
Lueken	Georgia Special Needs Scholarship Program	Georgia	2018	✓		
Lueken	Choice Scholarship Program	Indiana	2018	✓		
Lueken	Louisiana Scholarship Program	Louisiana	2018	✓		
Lueken	School Choice Program for Certain Students with Exceptionalities	Louisiana	2018			X
Lueken	Mississippi Dyslexia Therapy Scholarship for Students with Dyslexia Program	Mississippi	2018	✓		
Lueken	Cleveland Scholarship Program	Cleveland, OH	2018	✓		

§This study employed multiple measures of racial integration and concluded that the effects of the program was overall neutral. We included this study in the "No Visible Effect" column.

Research Studies on Voucher Programs (continued)

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies (continued)						
Lueken	Autism Scholarship Program	Ohio	2018	✓		
Lueken	Educational Choice Scholarship Program	Ohio	2018	✓		
Lueken	Jon Peterson Special Needs Scholarship Program	Ohio	2018	✓		
Lueken	Lindsey Nicole Henry Scholarships for Students with Disabilities	Oklahoma	2018	✓		
Lueken	Carson Smith Special Needs Scholarship Program	Utah	2018	✓		
Lueken	Milwaukee Parental Choice Program	Milwaukee, WI	2018	✓		
Lueken	Parental Private School Choice Program (Racine)	Racine, WI	2018	✓		
Trivitt and DeAngelis	Succeed Scholarship Program	Arkansas	2018	✓		
Wisconsin LAB#	Special Needs Scholarship Program	Wisconsin	2018		○	
DeAngelis and Trivitt	Louisiana Scholarship Program	Louisiana	2016	✓		
Trivitt and DeAngelis	Louisiana Scholarship Program	Louisiana	2016	✓		
Spalding	Opportunity Scholarship Program‡	Florida	2014	✓		
Wolf and McShane	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
Costrell	Milwaukee Parental Choice Program	Milwaukee, WI	2010	✓		
Aud	Town Tuitioning Program	Vermont	2007		○	
Aud	Town Tuitioning Program	Maine	2007		○	
Aud	John M. McKay Scholarships for Students with Disabilities Program	Florida	2007	✓		
Aud	Opportunity Scholarship Program‡	Florida	2007	✓		
Aud	Opportunity Scholarship Program	Washington, D.C.	2007	✓		
Aud	Cleveland Scholarship Program	Cleveland, OH	2007	✓		
Aud	Autism Scholarship Program	Ohio	2007	✓		
Aud	Carson Smith Special Needs Scholarship Program	Utah	2007		○	
Aud	Milwaukee Parental Choice Program	Milwaukee, WI	2007	✓		
Aud and Michos	Opportunity Scholarship Program	Washington, D.C.	2006	✓		

‡The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.

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Research Studies on Tax-Credit Scholarship Programs

Author(s)	Program Name	Location	Year	Results		
				Any Positive Effect	No Visible Effect	Any Negative Effect
Attainment Outcomes of Participants from All Empirical Studies						
Chingos, Monarrez, and Kuehn	Florida Tax Credit Scholarship Program	Florida	2019	✓		
Parent Satisfaction Impacts from Private Educational Choice Programs						
Department of Revenue Administration	Education Tax Credit Program	New Hampshire	2018	✓		
Catt and Rhinesmith	School Scholarship Tax Credit	Indiana	2017	✓		
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2016	✓		
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2014	✓		
Kelly and Scafidi	Qualified Education Expense Tax Credit	Georgia	2013	✓		
Academic Outcomes of Public Schools from All Empirical Studies						
Figlio and Hart	Florida Tax Credit Scholarship Program	Florida	2014	✓		
Rouse et al.	Florida Tax Credit Scholarship Program	Florida	2013	✓		
Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies						
Dearmon and Evans	Oklahoma Equal Opportunity Education Scholarships	Oklahoma	2018	✓		
Lueken	Original Individual Income Tax Credit Scholarship Program	Arizona	2018	✓		
Lueken	Low-Income Corporate Income Tax Credit Scholarship Program	Arizona	2018	✓		
Lueken	Lexie's Law for Disabled and Displaced Students Tax Credit Scholarship Program	Arizona	2018	✓		
Lueken	"Switcher" Individual Income Tax Credit Scholarship Program	Arizona	2018	✓		
Lueken	Florida Tax Credit Scholarship Program	Florida	2018	✓		
Lueken	Qualified Education Expense Tax Credit	Georgia	2018	✓		
Lueken	School Scholarship Tax Credit	Indiana	2018	✓		
Lueken	School Tuition Organization Tax Credit	Iowa	2018	✓		
Lueken	Educational Improvement Tax Credit Program	Pennsylvania	2018	✓		
Lueken	Tax Credits for Contributions to Scholarship Organizations	Rhode Island	2018	✓		
Girardi and Gullickson	School Tuition Organization Tax Credit	Iowa	2017	✓		
LOEDR‡	Florida Tax Credit Scholarship Program	Florida	2012	✓		
OPPAGA§	Florida Tax Credit Scholarship Program	Florida	2008	✓		
Aud	Original Individual Income Tax Credit Scholarship Program	Arizona	2007	✓		
Aud	Educational Improvement Tax Credit Program	Pennsylvania	2007	✓		
Aud	Florida Tax Credit Scholarship Program	Florida	2007	✓		

*The report combined voucher and tax-credit scholarship parents into "Choice Parents," although anyone could calculate voucher and tax-credit scholarship results based on data tables in the report appendices.

†The report combined voucher and tax-credit scholarship parents into "Choice Parents" for all information made publicly available.

‡ Legislative Office of Economic and Demographic Research (State of Florida)

§ Office of Program Policy Analysis and Government Accountability (State of Florida)

Research Studies on Privately Funded Programs

Author(s)	Location	Year	Results		
			Any Positive Effect	No Visible Effect	Any Negative Effect
Test Score Outcome of Participants from Random Assignment Studies					
Bitler et. al.	New York, NY	2015		○	
Jin, Barnard, and Rubin	New York, NY	2010	✓		
Cowen	Charlotte, NC	2008	✓		
Bettinger and Slonim	Toledo, OH	2006		○	
Krueger and Zhu	New York, NY	2004	✓	○	
Barnard et al.	New York, NY	2003	✓	○	
Howell et al.	Washington, D.C.	2002	✓		
Howell et al.	New York, NY	2002	✓		
Howell et al.	Dayton, OH	2002	✓	○	
Greene	Charlotte, NC	2001	✓		
Attainment Outcomes of Participants from All Empirical Studies					
Chingos and Peterson	New York, NY	2015	✓	○	
Parent Satisfaction Impacts from Private Educational Choice Programs					
Howell and Peterson	Dayton, OH	2002	✓		
Howell and Peterson	New York, NY	2002	✓		
Howell and Peterson	National	2002	✓		
Howell and Peterson	Washington, D.C.	2002	✓		
Peterson and Campbell	National	2001	✓		
Greene	Charlotte, NC	2001	✓		
Peterson, Campbell, and West	San Francisco, CA	2001	✓		
Peterson, Myers, and Howell	San Antonio, TX	1999	✓		
Weinschrott and Kilgore	Indianapolis, IN	1998	✓		
Academic Outcomes of Public Schools from All Empirical Studies					
Gray, Merrifield, and Adzima	San Antonio, TX	2016	✓		
Merrifield and Gray	San Antonio, TX	2009	✓		
Diamond	San Antonio, TX	2007	✓		
Greene and Forster	San Antonio, TX	2002	✓		
Civic Values and Practices from All Empirical Studies					
Carlson, Chingos, and Campbell	New York, NY	2017		○	
Campbell	Nationwide	2008	✓		
Bettinger and Slonim	Toledo, OH	2006	✓		
Howell and Peterson	Washington, D.C.	2006		○	
Peterson and Campbell	Nationwide	2001		○	
Wolf et. al.	Washington, D.C.	2001	✓		
Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies					
Merrifield & Gray	San Antonio, TX	2009	✓		

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CONTRIBUTORS

Andrew D. Catt

Paul DiPerna

Martin F. Lueken

Michael Q. McShane

Michael Shaw

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