

# THE 123s OF SCHOOL CHOICE

What the research says about private  
school choice programs in America

**2020 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.

Suggested citation: EdChoice (2020), *The 123s of School Choice: What the Research Says about Private School Choice Programs in America*, 2020 edition, retrieved from: <https://www.edchoice.org/wp-content/uploads/2020/04/123s-of-School-Choice-2020.pdf>

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# INTRODUCTION

Welcome to the second edition of *The 123s of School Choice*. First launched last year, this annual publication is designed to be a one-stop shop for all the existing research on private school choice in the United States. This year's edition is updated with the research published since our last edition. Before we get to the updates, we wanted to share the scope and purpose of this report.

Since the first modern-day voucher program launched in Milwaukee in 1990, researchers have studied private school choice programs. Few American education reforms have been studied as much as choice.<sup>i</sup> 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 150 empirical studies on the effectiveness of these programs. The purpose of this publication is to list, summarize, and explain those studies.

The first set of outcomes we cover are studies of the personal benefits that students and 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 the program.

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, civic participation, volunteerism, social capital, civic skills, voter registration, voter turnout, and 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.

Last year, we built upon previous EdChoice publications, including the four editions of Greg Forster’s research summary *A Win-Win Solution: The Empirical Evidence on School Choice*, to create the first edition of *The 123s of School Choice*. Much of this year’s edition remains the same, but we did want to highlight the new studies we have included and how we identified new studies to include.

To identify new studies and to make sure that we hadn’t missed any previously published studies, we enlisted the help of Hanover Research. We asked them to conduct a search for works related to private school choice going back to 1995. Searches were conducted using EBSCO, JSTOR, ProQuest, Google Scholar, and the EconLit, ERIC, and National Bureau of Economic Research databases. Works include peer-reviewed papers in scholarly journals, reports, books, working papers, dissertations, and conference papers and proceedings. The following search terms were used: “school choice,” “ESA,” “school and voucher,” “tax and credit and scholarships,” “tuition and tax and credits,” “education and savings and accounts,” and “education and voucher.” Our review of records from Google Scholar was limited to the first 200 results returned for each search term.

Several new studies or updates to previous analyses of private school choice published in 2019 and will be included in this edition of *The 123s of School Choice*:

- The longitudinal evaluation of the D.C. Opportunity Scholarship Program (DCOSP) concluded in 2019. The authors did not detect any significant effect on test scores by program participants or any subgroup of students, but it did find positive effects in other areas. D.C.’s voucher program reduced chronic absenteeism, improved students’ satisfaction with their schools, and improved students’ perceptions of school safety.<sup>ii</sup>
- The evaluation of Louisiana’s voucher program also concluded in 2019. It found statistically significant negative effects on participant test scores in math and reading and did not detect any impact on college enrollment. Reports on the first years of the LSP were the first studies to find negative effects from a private school voucher program. While the gap in test scores between participants and non-participants narrowed during the second and third years of the program, the gap slightly increased in the fourth year. While researchers found negative direct effects on participants’ test scores, a forthcoming paper found neutral to positive effects of the program on students who remained in public schools.<sup>iii</sup>

<sup>i</sup>EdChoice (2020), *Comparing Ed Reforms: Assessing the Experimental Research on Nine K-12 Education Reforms*, retrieved from: <https://www.edchoice.org/wp-content/uploads/2020/04/comparing-ed-reforms.pdf>

<sup>ii</sup>Ann Webber, Ning Rui, Roberta Garrison-Mogren, Robert B. Olsen, and Babette Gutmann (2019), *Evaluation of the DC Opportunity Scholarship Program: Impacts Three Years After Students Applied* (NCEE 2019-4006), retrieved from Institute of Education Sciences website: <https://ies.ed.gov/ncee/pubs/20194006/pdf/20194006.pdf>

<sup>iii</sup>Patrick J. Wolf, Jonathan N. Mills, Yujie Sude, Heidi H. Erickson, and Matthew L. Lee (2019), *How Has the Louisiana Scholarship Program Affected Students? A Comprehensive Summary of Effects after Four Years*, Louisiana Scholarship Program Evaluation Policy Brief, School Choice Demonstration Project, retrieved from University of Arkansas website: <http://www.uaedreform.org/wp-content/uploads/LSP4-Policy-Brief-SCDP.pdf>. Anna J. Egalite and Jonathan M. Mills (2020), *Competitive Impacts of Means-Tested Vouchers on Public School Performance: Evidence from Louisiana, Education Finance and Policy*, advance online publication, [https://dx.doi.org/10.1162/edfp\\_a\\_00286](https://dx.doi.org/10.1162/edfp_a_00286)

- Four new studies on the long-term outcomes of private school choice were published in 2019. Three of them were conducted by the Urban Institute. An updated analysis of the Florida Tax Credit (FTC) Scholarship Program found the program continues to improve the likelihood that students in the program enroll in two-year and four-year colleges and earn a bachelor’s degree. A study of the Milwaukee Parental Choice Program found students who participated in the program were more likely to enroll and graduate from college. The DCOSP study did not detect any differences in long-term outcomes between participants and non-participants. To create comparison groups, the Florida and Milwaukee studies used matching techniques and the D.C. study used random assignment.<sup>iv</sup>
- Researchers from Harvard University, the University of Arkansas, and the Urban Institute also examined college and degree attainment outcomes from a privately funded scholarship program in New York City. The study adds to research on the long-term effects of this program by taking a closer look at heterogeneous effects among disadvantaged minority students. The study found “no significant effects of (scholarship) offers on minority students from severely disadvantaged backgrounds but significant effects of 6 to 8 percentage points on those from moderately disadvantaged households.”<sup>v</sup>
- The Florida Tax Credit Scholarship Program (FTC) is one of the oldest and largest private school choice programs in the country, serving more than 100,000 students in 2019–20. The program’s student eligibility and participation growth through the years provides researchers an opportunity to study program expansion’s effects on students who remain in public schools. Expansion of the FTC not only improved math and reading test scores, but also reduced rates of absenteeism and school suspensions for students remaining in public schools.<sup>vi</sup>
- Parents care about other aspects of schooling that are not captured by test scores. Researchers have been studying the effects of private school choice programs on civic values and practices for at least two decades. The body of research continued to grow with a study examining the relationship between participating in Milwaukee’s voucher program and criminal activity. The analysis found “exposure to private schooling through a voucher is associated with lower rates of criminal activity,” such as committing misdemeanors, felonies, and theft.<sup>vii</sup>
- Parent satisfaction is an important outcome that policymakers and the public should care about. EdChoice released a cross-sector parent survey report last year that showed private educational choice program parents in Arizona are less satisfied with their chosen schools than charter school parents, traditional public school parents, and non-program private school parents. Satisfaction with various aspects of school climate were more mixed.<sup>viii</sup>

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<sup>iv</sup>Matthew M. Chingos, Daniel Kuehn, Tomas Monarrez, Patrick J. Wolf, John F. Witte, and Brian Kisida (2019), *The Effects of Means-Tested Private School Choice Programs on College Enrollment and Graduation*, retrieved from Urban Institute website: [https://www.urban.org/sites/default/files/publication/100665/the\\_effects\\_of\\_means-tested\\_private\\_school\\_choice\\_programs\\_on\\_college\\_enrollment\\_and\\_graduation\\_2.pdf](https://www.urban.org/sites/default/files/publication/100665/the_effects_of_means-tested_private_school_choice_programs_on_college_enrollment_and_graduation_2.pdf)

<sup>v</sup>Albert Cheng, Matthew Chingos, and Paul E. Peterson (2019), *Experimentally Estimated Impacts of School Vouchers on Educational Attainments of Moderately and Severely Disadvantaged Students* (PEPG 19-02), retrieved from Harvard University website: [https://sites.hks.harvard.edu/pepg/PDF/Papers/PEPG19\\_02.pdf](https://sites.hks.harvard.edu/pepg/PDF/Papers/PEPG19_02.pdf)

<sup>vi</sup>David N. Figlio, Cassandra M.D. Hart, and Krzysztof Karbownik (2020), *Effects of Scaling Up Private School Choice Programs on Public School Students* (NBER Working Paper 26758), retrieved from National Bureau of Economics website: <http://www.nber.org/papers/w26758>

- Finally, three fiscal analyses of currently operating private school choice programs were released since last year. EdChoice released a fiscal analysis of Pennsylvania’s two tax-credit scholarship programs and showed that, overall, the programs generated significant fiscal benefits for the state and school districts combined—between \$4,000 and \$6,800 per scholarship (or \$3 billion to \$5 billion cumulatively).<sup>ix</sup> More recently, a fiscal analysis of Arizona’s four tax-credit scholarship programs found these programs generated an overall estimated net fiscal benefit worth between \$35 million and \$285 million for the state in FY 2018.<sup>x</sup>

As we often state, every study comes with its own caveats, and those published in 2019 are no exception. Not all policies are created equal. Evidence from these evaluations tells us something about the design and implementation of these private school choice programs, too. In the case of Louisiana, for example, the program was designed in a way that seemed to generate strong disincentives for private schools to participate. We know this because most private schools in Louisiana chose not to participate in the program. Only one-third of Louisiana private schools signed up, and there is compelling evidence that these were lower-quality private schools. For instance, researchers discovered that schools with higher tuition levels and growing enrollment were less likely to sign up.<sup>xi</sup> Another study showed private schools that signed up for the program experienced sharp enrollment declines during years prior to entering in the program relative to non-participating private schools.<sup>xii</sup>

It is also true that while test scores provide information that at least some parents care about, they may miss conveying important program effects.<sup>xiii</sup> And of course, parents do not consider test scores the most important schooling outcome.<sup>xiv</sup>

With that, we hope this year’s edition of *The 123s of School Choice* can be useful to you as you try to understand the landscape of research on private school choice.

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<sup>vii</sup>Corey A. DeAngelis and Patrick J. Wolf (2019), Private School Choice and Crime: Evidence from Milwaukee, *Social Science Quarterly*, 100(5), pp. 2302–2315, <https://dx.doi.org/10.1111/ssqu.12698>

<sup>viii</sup>Andrew D. Catt and Albert Cheng (2019), *Families’ Experiences on the New Frontier of Educational Choice: Findings from a Survey of K–12 Parents in Arizona*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2019/05/2019-4-Arizona-Parent-Survey-by-Andrew-Catt-and-Albert-Chang.pdf>

<sup>ix</sup>Martin F. Lueken (2019), *Projected Fiscal Impact of Pennsylvania Senate Bill No. 299*, retrieved from EdChoice website: [https://www.edchoice.org/wp-content/uploads/2019/06/EdChoice-brief\\_PA-SB-299-fiscal-projections.pdf](https://www.edchoice.org/wp-content/uploads/2019/06/EdChoice-brief_PA-SB-299-fiscal-projections.pdf)

<sup>x</sup>Deborah Sheasby (2020), *How the Arizona School Tuition Organization Tax Credits Save the State Money*, retrieved from Center for Arizona Policy website: <https://www.azpolicy.org/wp-content/uploads/2020/01/How-the-AZ-STO-Tax-Credits-Save-the-State-Money-2.pdf>

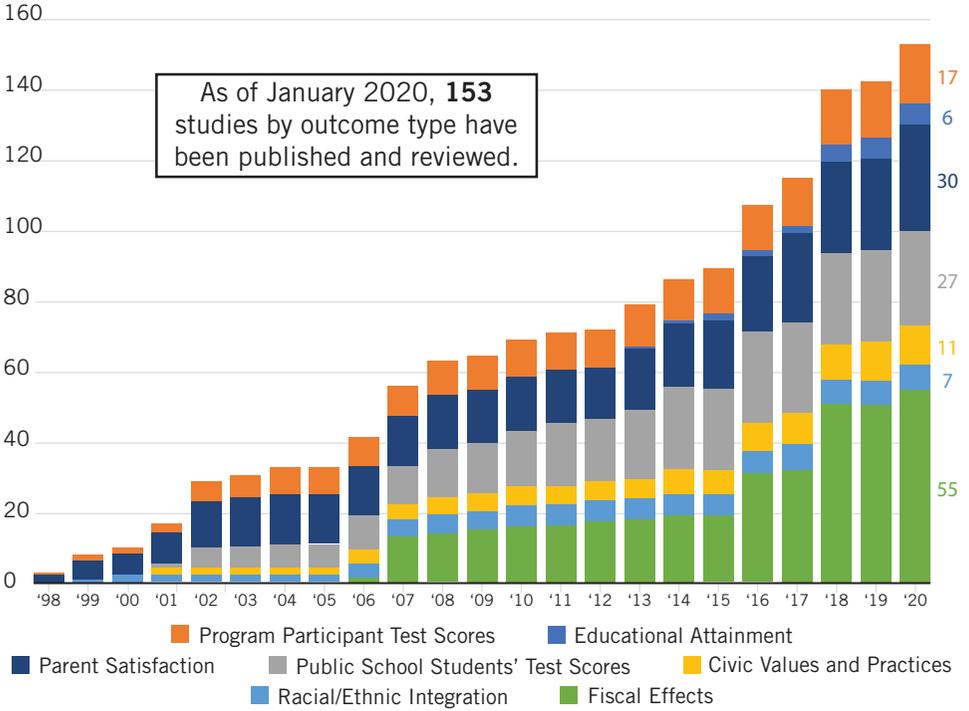
<sup>xi</sup>Yujie Sude, Corey A. DeAngelis, and Patrick J. Wolf (2018), Supplying Choice: An Analysis of School Participation Decisions in Voucher Programs in Washington, DC, Indiana, and Louisiana, *Journal of School Choice*, 12(1), pp. 8–33, <https://doi.org/10.1080/15582159.2017.1345232>

<sup>xii</sup>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>

<sup>xiii</sup>There is evidence that points to a disconnect between test scores and long-run outcomes. For example, please see: Collin Hitt, Michael Q. McShane, and Patrick J. Wolf (2018), *Do Impacts on Test Scores Even Matter? Lessons from Long-Run Outcomes in School Choice Research: Attainment Versus Achievement Impacts and Rethinking How to Evaluate School Choice Programs*, retrieved from American Enterprise Institute website: <http://www.aei.org/wp-content/uploads/2018/04/Do-Impacts-on-Test-Scores-Even-Matter.pdf>; Corey A. DeAngelis (2018), Divergences between Effects on Test Scores and Effects on Non-Cognitive Skills, *Educational Review*, <https://dx.doi.org/10.2139/ssrn.3273422>

<sup>xiv</sup>James P. Kelly 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>

# Cumulative Number of Studies Published by Outcome and by Year Published







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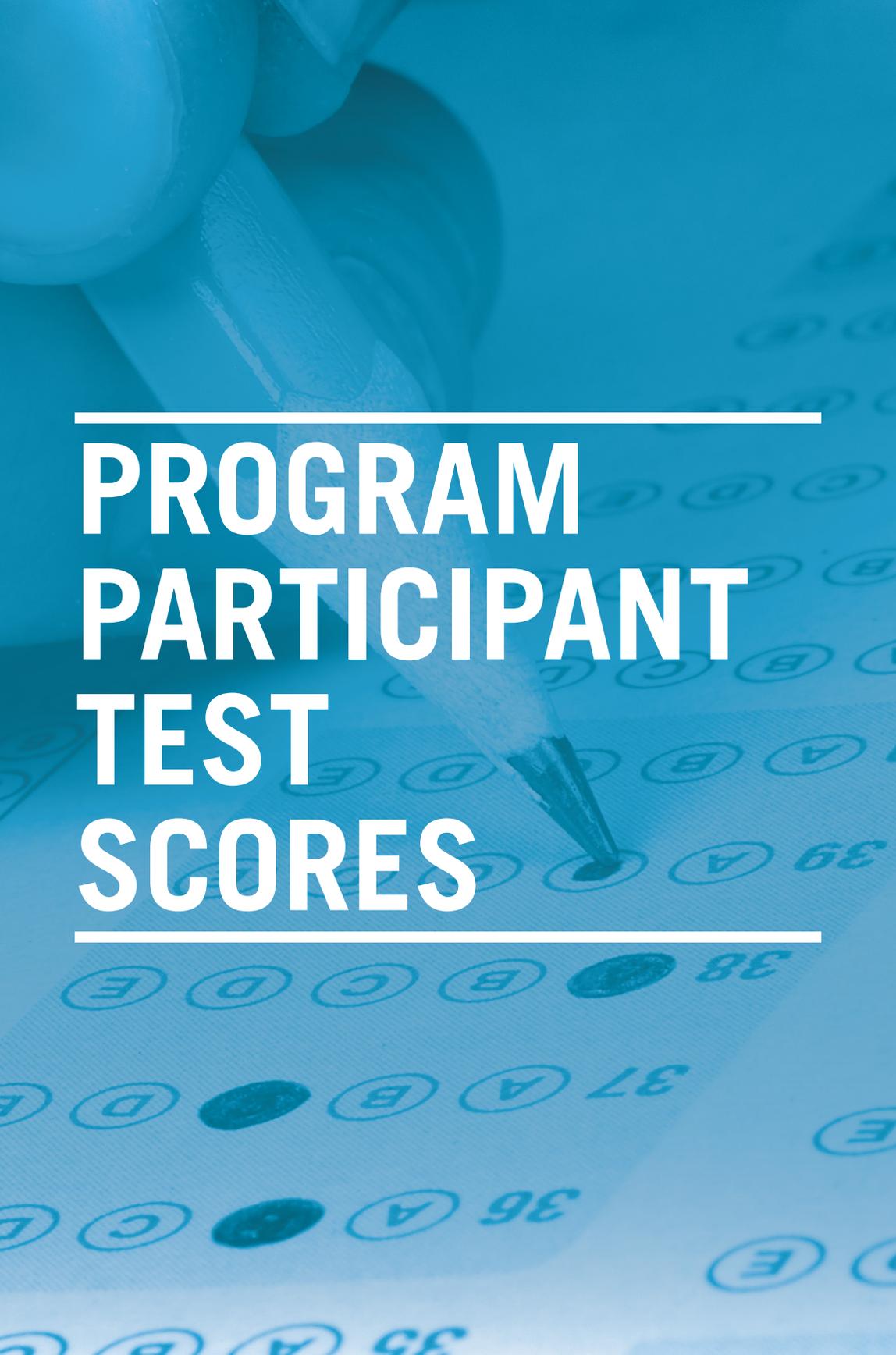
# **RESEARCH OVERVIEWS FOR SEVEN SCHOOL CHOICE OUTCOMES**

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# PROGRAM PARTICIPANT TEST SCORES

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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 randomized control trials (RCTs) have been of voucher or scholarship programs limited to cities, including Milwaukee, Charlotte, Cleveland, Dayton, New York City, and Toledo. See Appendix for an explanation of RCTs.

Longitudinal evaluations of the LSP and District of Columbia Opportunity Scholarship Program concluded in 2019. The D.C. evaluation did not detect any significant impact from the program on test scores by participants or any subgroup of students after three years in the program. The LSP evaluation found statistically significant negative effects on participant test scores in math and reading. Reports on the first couple years of the LSP were the first studies to find negative effects from a private school voucher program. While the gap in test scores between participants and non-participants narrowed during the second and third years of the program, the gap slightly increased during the fourth year.

## Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Test Scores	17	11	4	3

These studies examined three voucher programs and five privately funded scholarship programs across five states and D.C. Of the 17 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. Four found no visible effect for any group of students, and three found negative outcomes for all or some group of students.

# Test Score Outcomes of Participants from Experimental Studies

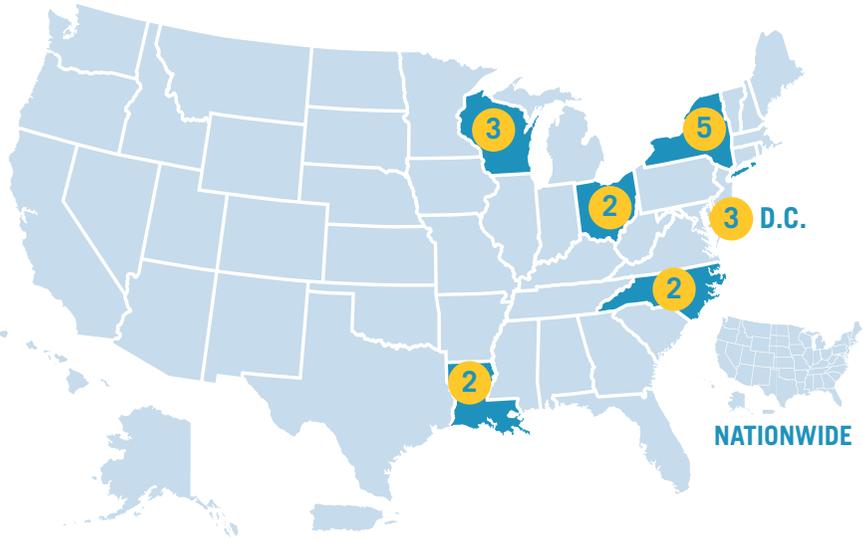
Author(s)	Location	Program Name
Webber et al.	Washington, D.C.	Opportunity Scholarship Program
Mills and Wolf	Louisiana	Louisiana Scholarship Program
Abdulkadiroglu, Pathak, and Walters	Louisiana	Louisiana Scholarship Program
Wolf et al.	Washington, D.C.	Opportunity Scholarship Program
Lamarche	Milwaukee, WI	Milwaukee Parental Choice Program
Greene, Peterson, and Du	Milwaukee, WI	Milwaukee Parental Choice Program
Rouse	Milwaukee, WI	Milwaukee Parental Choice Program
Bitler et. al.	New York, NY	
Jin, Barnard, and Rubin	New York, NY	
Cowen	Charlotte, NC	
Bettinger and Slonim	Toledo, OH	
Krueger and Zhu	New York, NY	
Barnard et al.	New York, NY	
Howell et al.	Washington, D.C.	
Howell et al.	New York, NY	
Howell et al.	Dayton, OH	
Greene	Charlotte, NC	

V = Voucher , P = Private Scholarship

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)
V	2019			○	○		
V	2019					X	X
V	2018					X	X
V	2013	✓	✓				
V	2008		✓				X
V	1999	✓					
V	1998	✓	✓				
P	2015			○	○		
P	2010		✓				
P	2008	✓					
P	2006			○			
P	2004			○	○		
P	2003		✓	○			
P	2002	✓	✓				
P	2002	✓	✓				
P	2002		✓	○			
P	2001	✓					

Notes: Table includes only random assignment studies, the gold-standard of research methods. A study by Howell, Wolf, Campbell, and Peterson (2002) included three distinct analyses of three different voucher programs. We report results from each analysis separately. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect." The number of effects detected may differ from the number of studies included in the table because we classify one study as having detected both positive and negative effects."

# Number of Studies on Voucher Program Participant Test Scores by Location



## 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 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., students’ and parents’ 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’ and parents’ 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.

## Additional Research Context

Researchers from the University of Arkansas conducted a meta-analysis of the test score effects of private school choice programs globally and estimated the overall effects of these programs on participants' reading, English and math test scores.<sup>1</sup> Students who won the voucher lottery saw small positive but statistically insignificant gains on test scores. Students who won the voucher lottery and used the voucher experienced larger positive gains. Notably, reading and math scores increase the longer a student uses a voucher. 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.

Two nonexperimental studies on voucher programs in Indiana and Ohio used matching methods to study the effects of the program on math and reading test scores. Both studies found negative math and reading test score effects.<sup>2</sup> 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.<sup>3</sup>

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*

Ann Webber, Ning Rui, Roberta Garrison-Mogren, Robert B. Olsen, and Babette Gutmann (2019), *Evaluation of the DC Opportunity Scholarship Program: Impacts Three Years After Students Applied* (NCEE 2019-4006), retrieved from Institute of Education Sciences website: <https://ies.ed.gov/ncee/pubs/20194006/pdf/20194006.pdf>

Jonathan N. Mills and Patrick J. Wolf (2019), *The Effects of the Louisiana Scholarship Program on Student Achievement After Four Years* (Louisiana Scholarship Program Evaluation Report 10), <https://dx.doi.org/10.2139/ssrn.3376230>

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>

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>

Carlos Lamarche (2008). Private School Vouchers and Student Achievement: A Fixed Effects Quantile Regression Evaluation, *Labour Economics*, 15(4), pp. 575–590, <https://doi.org/10.1016/j.labeco.2008.04.007>

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/10.1198/0162145030000071>

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](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 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.

Over the last few years, the Urban Institute conducted studies on the effects of long-term student outcomes by private school choice programs in Florida, District of Columbia, Milwaukee, and New York City. Last year, it released a report summarizing the most up-to-date results from these analyses. An updated analysis of the Florida Tax Credit scholarship program shows that the program continues to improve the likelihood that students in the program enroll in two-year and four-year colleges and earn a bachelor's degree. A study of Milwaukee's voucher program shows students who participated in the program were more likely to enroll and graduate from college. The D.C. study did not detect any differences in long-term outcomes between participants and non-participants. To create comparison groups, the Florida and Milwaukee studies used matching techniques and the D.C. study used random assignment.

## Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Test Scores	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.

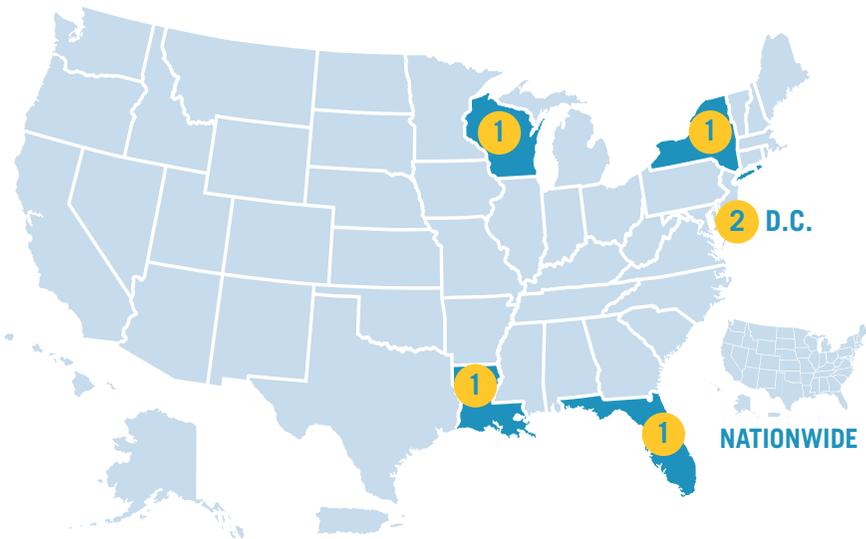
# Attainment Outcomes of Participants from All Empirical Studies

Author(s)	Location	Program Name
Chingos et al.	Washington, D.C.	Opportunity Scholarship Program
Chingos et al.	Milwaukee, WI	Milwaukee Parental Choice Program
Erickson, Mills, and Wolf	Louisiana	Louisiana Scholarship Program
Wolf et al.	Washington, D.C.	Opportunity Scholarship Program
Chingos et al.	Florida	Florida Tax Credit Scholarship Program
Cheng, Chingos, and Peterson*	New York, NY	

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

\*The sample and methods used in this study are the same as those used in 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>. Two main differences are framing across levels of disadvantage and more recent data added to the analysis.

## Number of Studies on Program Participant Attainment Effects by Location



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)
V	2019			○	○		
V	2019	✓					
V	2018			○	○		
V	2013	✓	✓				
TCS	2019	✓	✓				
P	2019		✓	○			

*Notes:* This table shows all empirical studies using all methods. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect." Two studies, on the Florida Tax Credit Scholarship Program and Milwaukee Parental Choice Program, used matching methods while all other analyses were based on random assignment.

## 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.<sup>4</sup> 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.

## Citations of Studies in Summary Table

*Listed in chronological order, starting with most recent*

Matthew M. Chingos, Daniel Kuehn, Tomas Monarrez, Patrick J. Wolf, John F. Witte, and Brian Kisida (2019), *The Effects of Means-Tested Private School Choice Programs on College Enrollment and Graduation*, retrieved from Urban Institute website: [https://www.urban.org/sites/default/files/publication/100665/the\\_effects\\_of\\_means-tested\\_private\\_school\\_choice\\_programs\\_on\\_college\\_enrollment\\_and\\_graduation\\_2.pdf](https://www.urban.org/sites/default/files/publication/100665/the_effects_of_means-tested_private_school_choice_programs_on_college_enrollment_and_graduation_2.pdf)

Heidi H. Erickson, Jonathan N. Mills, and Patrick J. Wolf (2019), *The Effect of the Louisiana Scholarship Program on College Entrance* (Louisiana Scholarship Program Evaluation Report 12), <https://dx.doi.org/10.2139/ssrn.3376236>

Albert Cheng, Matthew M. Chingos, Paul E. Peterson (2019), *Experimentally Estimated Impacts of School Voucher on Educational Attainments of Moderately and Severely Disadvantaged Students* (EdWorkingPaper 19-76), retrieved from Annenberg Institute at Brown University website: <http://edworkingpapers.com/ai19-76>

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>





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# PARENT SATISFACTION

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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 Washington, 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.

EdChoice released a cross-sector parent survey report last year that showed private educational choice program parents in Arizona are less satisfied with their chosen schools than charter school parents, traditional public school parents, and non-program private school parents. Perceptions with various aspects of school climate were more mixed, with ESA and/or tax-credit scholarship parents expressing equal or higher levels than charter, traditional public, and/or non-program private school parents on three of five measures.

## Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Parent Satisfaction	30	29	1	2

These studies examined two ESA programs, seven voucher programs, seven tax-credit scholarship programs, and at least seven privately funded scholarship programs across twelve states and D.C. Of the 30 studies examining the effects of private school choice programs on parent satisfaction, 29 have found positive effects, one study found no visible effect, and two studies found negative effects.

# Parent Satisfaction Impacts from Private Educational Choice Programs

Author(s)	Program Name
Catt and Cheng	Empowerment Scholarship Accounts
Kittredge	Equal Opportunity for Students with Special Needs Program
Butcher and Bedrick	Empowerment Scholarship Accounts
Department of Public Instruction	Special Needs Scholarship Program
Catt and Rhinesmith	Choice Scholarship Program
Egalite, Gray, and Stallings	Opportunity Scholarships
Black	John M. McKay Scholarships for Students with Disabilities Program
Kisida and Wolf	Opportunity Scholarship Program
Witte et al.	Milwaukee Parental Choice Program
Weidner and Herrington	John M. McKay Scholarships for Students with Disabilities Program
Greene and Forster	John M. McKay Scholarships for Students with Disabilities Program
Witte	Milwaukee Parental Choice Program
Metcalf	Cleveland Scholarship Program
Peterson, Howell, and Greene	Cleveland Scholarship Program
Greene, Howell, and Peterson	Cleveland Scholarship Program
Catt and Rhinesmith	Choice Scholarship Program/School Scholarship Tax Credit
DiPerna	Choice Scholarship Program/School Scholarship Tax Credit
Catt and Cheng	All four tax-credit scholarship programs‡
Department of Revenue Administration	Education Tax Credit Program
Catt and Rhinesmith	School Scholarship Tax Credit
Kelly and Scafidi	Qualified Education Expense Tax Credit
Howell and Peterson	
Peterson and Campbell	
Greene	
Peterson, Campbell, and West	
Peterson, Myers, and Howell	
Weinschrott and Kilgore	

ESA = Education 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.

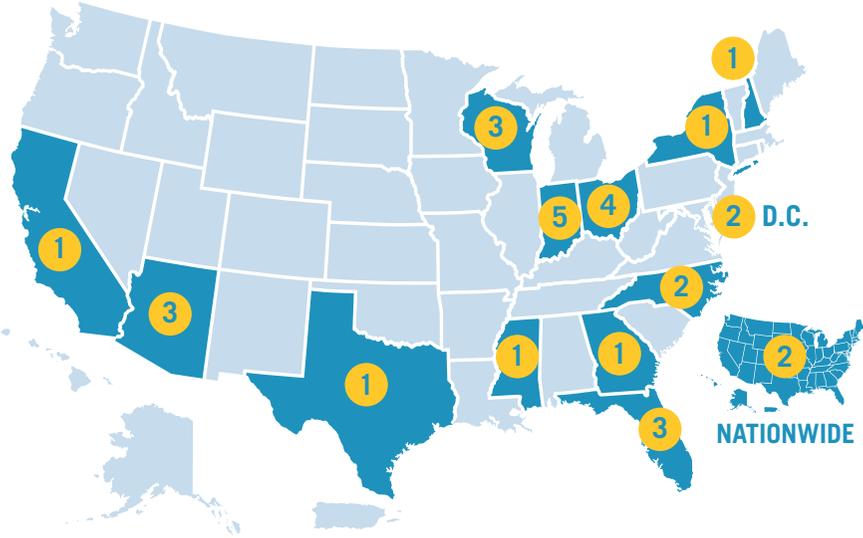
†The report combined voucher and tax-credit scholarship parents into "Choice Parents" for all information made publicly available.

‡ Results could not be broken out by program and reflect responses by parents with children attending private schools via any of Arizona's four tax-credit scholarship programs.

	Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
	Arizona	ESA	2019	✓		X
	Mississippi	ESA	2016	✓		
	Arizona	ESA	2013	✓		
	Wisconsin	V	2018	✓		
	Indiana	V	2017	✓		
	North Carolina	V	2017	✓		
	Florida	V	2015		○	
	Washington, D.C.	V	2015	✓		
	Milwaukee, WI	V	2008	✓		
	Florida	V	2006	✓		
	Florida	V	2003	✓		
	Milwaukee, WI	V	2000	✓		
	Cleveland, OH	V	1999	✓		
	Cleveland, OH	V	1999	✓		
	Cleveland, OH	V	1998	✓		
	Indiana	V/TCS*	2016	✓		
	Indiana	V/TCS†	2014	✓		
	Arizona	TCS	2019	✓		X
	New Hampshire	TCS	2018	✓		
	Indiana	TCS	2017	✓		
	Georgia	TCS	2013	✓		
	Dayton, OH	P	2002	✓		
	New York, NY	P	2002	✓		
	National	P	2002	✓		
	Washington, D.C.	P	2002	✓		
	National	P	2001	✓		
	Charlotte, NC	P	2001	✓		
	San Francisco, CA	P	2001	✓		
	San Antonio, TX	P	1999	✓		
	Indianapolis, IN	P	1998	✓		

Notes: This table shows all studies using all methods. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Number of Studies on Parent Satisfaction by Location



## 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.

## 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.”<sup>5</sup>

## Citations of Studies in Summary Table

*Listed in chronological order, starting with most recent*

Andrew D. Catt and Albert Cheng (2019), *Families’ Experiences on the New Frontier of Educational Choice: Findings from a Survey of K–12 Parents in Arizona*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2019/05/2019-4-Arizona-Parent-Survey-by-Andrew-Catt-and-Albert-Chang.pdf>

New Hampshire Department of Revenue Administration (2018), *Scholarship Organization Report: Giving and Going Alliance*, retrieved from <https://www.revenue.nh.gov/quick-links/documents/givingandgoingalliance.PDF>; New Hampshire Department of Revenue Administration (2018), *Scholarship Organization Report: Children’s Scholarship Fund*, retrieved from <https://www.revenue.nh.gov/quick-links/documents/childrensscholarshipfund.PDF>

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>

Andrew D. Catt and Evan Rhinesmith (2017), *Why Indiana Parents Choose: A Cross-Sector Survey of Parents’ Views in a Robust School Choice Environment*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2017/09/Why-Indiana-Parents-Choose-1.pdf>

Anna J. Egalite, Ashley Gray, and Trip Stallings (2017), *Parent Perspectives: Applicants to North Carolina’s Opportunity Scholarship Program Share Their Experiences* (OS Evaluation Report 2), retrieved from North Carolina State University website: <https://ced.ncsu.edu/elphd/wp-content/uploads/sites/2/2017/07/Parent-Perspectives.pdf>

Andrew D. Catt and Evan Rhinesmith (2016), *Why Parents Choose: A Survey of Private School and School Choice Parents in Indiana*, retrieved from EdChoice website: <https://www.edchoice.org/wp-content/uploads/2017/03/Why-Parents-Choose-A-Survey-of-Private-School-and-School-Choice-Parents-in-Indiana-by-Andrew-D.-Catt-and-Evan-Rhinesmith.pdf>

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>

David B. Black (2015), *School Choice and Florida's McKay Scholarship Program for Students with Disabilities: An Analysis of Parental Satisfaction* (Doctoral dissertation), Florida Atlantic University, retrieved from [http://fau.digital.flvc.org/islandora/object/fau%3A31570/datastream/OBJ/view/School\\_choice\\_and\\_Florida\\_\\_\\_s\\_McKay\\_scholarship\\_program\\_for\\_students\\_with\\_disabilities\\_\\_an\\_analysis\\_of\\_parental\\_satisfaction.pdf](http://fau.digital.flvc.org/islandora/object/fau%3A31570/datastream/OBJ/view/School_choice_and_Florida___s_McKay_scholarship_program_for_students_with_disabilities__an_analysis_of_parental_satisfaction.pdf)

Paul DiPerna (2014), *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>

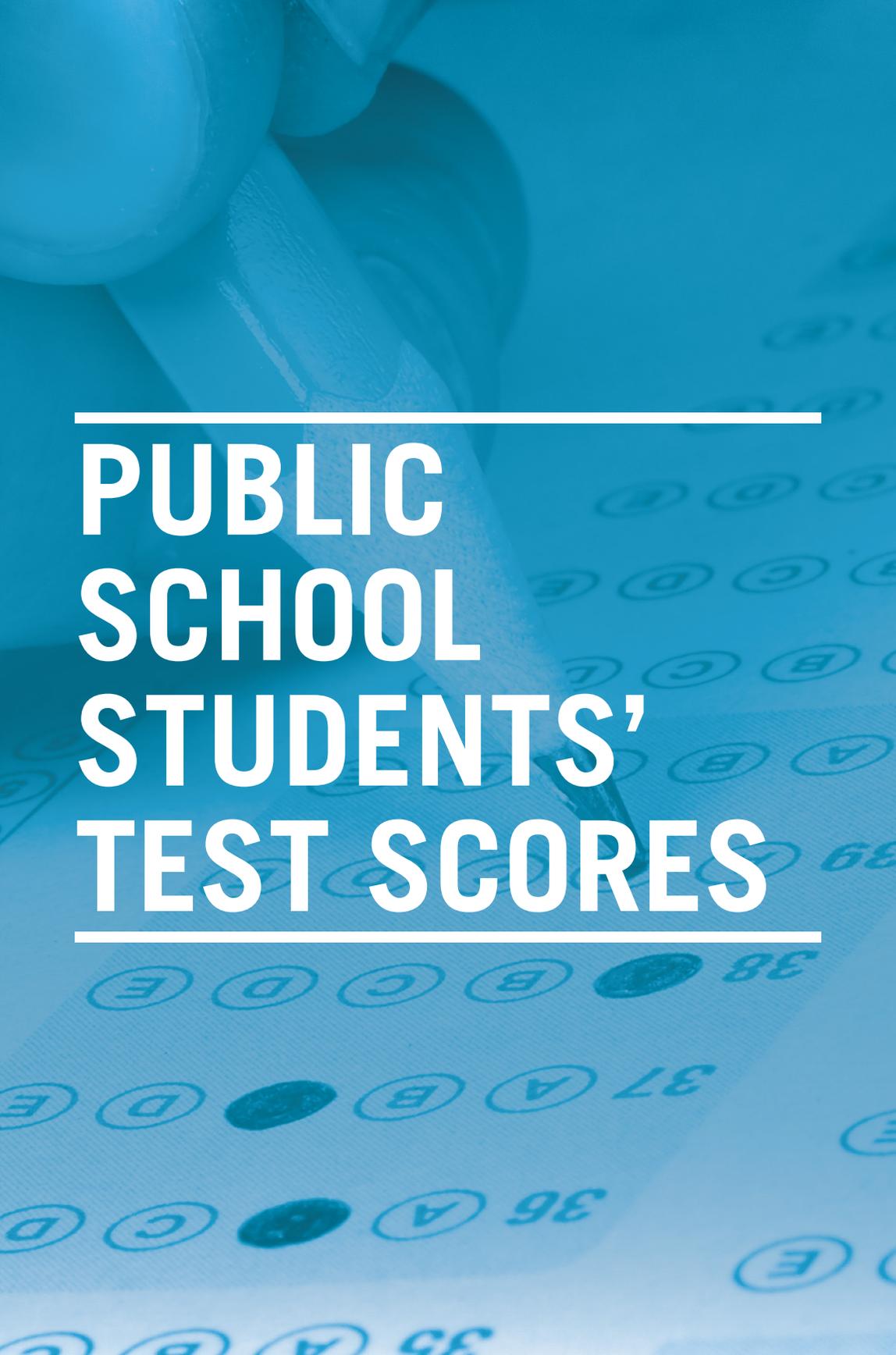
James P. Kelly and Benjamin Scafidi (2013), *More Than Scores: An Analysis of Why and How Parents Choose Private Schools*, retrieved from EdChoice website: <http://www.edchoice.org/wp-content/uploads/2015/07/More-Than-Scores.pdf>

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>

Virginia R. Weidner and Carolyn D. Herrington (2006), Are Parents Informed Consumers: Evidence from the Florida McKay Scholarship Program, *Peabody Journal of Education*, 81(1), pp. 27–56, [https://doi.org/10.1207/S15327930pje8101\\_3](https://doi.org/10.1207/S15327930pje8101_3)

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](https://media4.manhattan-institute.org/pdf/cr_38.pdf)

- William G. Howell and Paul E. Peterson (2002), *The Education Gap: Vouchers and Urban Schools*, <https://www.jstor.org/stable/10.7864/j.ctt128086>
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- John F. Witte (2000), *The Market Approach to Education: An Analysis of America's First Voucher Program*, <https://www.jstor.org/stable/j.ctt7rqnw>
- Kim K. Metcalf (1999), *Evaluation of the Cleveland Scholarship and Tutoring Grant Program: 1996-1999*, retrieved from <https://cdm16007.contentdm.oclc.org/digital/collection/p267401ccp2/id/1948>
- 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.

Many people want to know if these programs leave students who remain in public schools worse off. Many express concern that school choice programs might divert resources or the most capable students away from public schools, harming the children who are “left behind.” What does the evidence say?

Since the last edition of *The 123s of School Choice*, the National Bureau of Economic Research published a 2020 study that examined the effects student eligibility expansion of the Florida Tax Credit (FTC) Scholarship Program had on students who remained in public schools. The FTC is one of the oldest and largest private school choice programs in the country, serving over 100,000 students in 2019–20. As the program evolved and expanded, it improved math and reading test scores and also reduced rates of absenteeism and school suspensions for students remaining in public schools.

Another paper, forthcoming in *Education Finance and Policy*, analyzed the competitive effects of the Louisiana Scholarship Program and found neutral to positive effects for students in affected public schools.

Overall, fears of harm to public school students are overstated. 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	27	25	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 27 studies examining the effects of private school choice programs on public school test scores, 25 have found positive effects, one study found no visible effect, and one study found negative effects.

# Academic Outcomes of Public Schools from All Empirical Studies

Author(s)	Program Name
Egalite and Mills	Louisiana Scholarship Program
Figlio and Karbownik	Educational Choice Scholarship Program
Bowen and Trivitt	Opportunity Scholarship Program*
Egalite	Choice Scholarship Program
Chakrabarti	Opportunity Scholarship Program*
Carr	Educational Choice Scholarship Program
Winters and Greene	John M. McKay Scholarships for Students with Disabilities Program
Mader	Milwaukee Parental Choice Program
Greene and Marsh	Milwaukee Parental Choice Program
Chakrabarti	Milwaukee Parental Choice Program
Forster	Educational Choice Scholarship Program
Forster	Opportunity Scholarship Program*
Carnoy et al.	Milwaukee Parental Choice Program
Greene and Winters	Opportunity Scholarship Program
Figlio and Rouse	Opportunity Scholarship Program*
West and Peterson	Opportunity Scholarship Program*
Greene and Winters	Opportunity Scholarship Program*
Greene and Forster	Milwaukee Parental Choice Program
Hammons	Town Tuitioning Program
Hammons	Town Tuitioning Program
Hoxby	Milwaukee Parental Choice Program
Greene	Opportunity Scholarship Program*
Figlio et al.	Florida Tax Credit Scholarship Program
Figlio and Hart	Florida Tax Credit Scholarship Program
Rouse et al.	Florida Tax Credit Scholarship Program
Gray, Merrifield, and Adzima	
Greene and Forster	

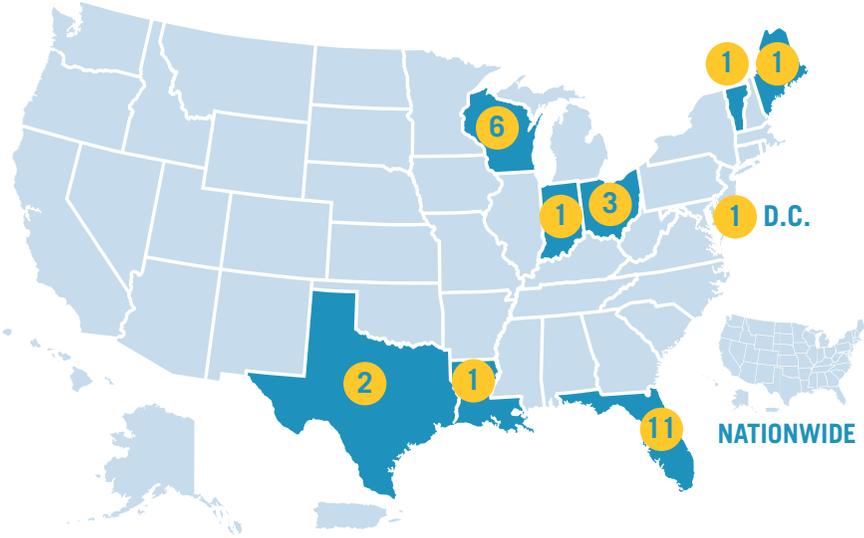
V = Voucher , TCS = Tax-Credit Scholarship , P = Private Scholarship

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

Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Louisiana	V	2020	✓		
Ohio	V	2016	✓		
Florida	V	2014			X
Indiana	V	2014	✓		
Florida	V	2013	✓		
Ohio	V	2011	✓		
Florida	V	2011	✓		
Milwaukee, WI	V	2010	✓		
Milwaukee, WI	V	2009	✓		
Milwaukee, WI	V	2008	✓		
Ohio	V	2008	✓		
Florida	V	2008	✓		
Milwaukee, WI	V	2007	✓		
Washington, D.C.	V	2007			
Florida	V	2006	✓		
Florida	V	2006	✓		
Florida	V	2004		○	
Milwaukee, WI	V	2002	✓		
Maine	V	2002	✓		
Vermont	V	2002	✓		
Milwaukee, WI	V	2002	✓		
Florida	V	2001	✓		
Florida	TCS	2020	✓		
Florida	TCS	2014	✓		
Florida	TCS	2013	✓		
San Antonio, TX	P	2016	✓		
San Antonio, TX	P	2002	✓		

Notes: This table shows all empirical studies using all methods. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Number of Studies on Public School Test Scores by Location



## 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.

## Additional Research Context

Several systematic reviews have been conducted to synthesize the competitive effects literature for private school choice programs.<sup>6</sup> 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.

## Citations of Studies in Summary Table

***Listed in chronological order, starting with most recent***

Anna J. Egalite and Jonathan N. Mills (2020), Competitive Impacts of Means-Tested Vouchers on Public School Performance: Evidence from Louisiana, *Education Finance and Policy*, advance online publication, [https://dx.doi.org/10.1162/edfp\\_a\\_00286](https://dx.doi.org/10.1162/edfp_a_00286)

David N. Figlio, Cassandra M.D. Hart, and Krzysztof Karbownik (2020), *Effects of Scaling Up Private School Choice Programs on Public School Students* (NBER Working Paper 26758), retrieved from <http://www.nber.org/papers/w26758>

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Nathan L. Gray, John D. Merrifield, and Kerry A. Adzima (2016), A Private Universal Voucher Program's Effects on Traditional Public Schools, *Journal of Economics and Finance*, 40(2), pp. 319–344, <https://dx.doi.org/10.1007/s12197-014-9309-z>

Daniel H. Bowen and Julie R. Trivitt (2014), Stigma Without Sanctions: The (Lack of) Impact of Private School Vouchers on Student Achievement, *education policy analysis archives*, 22(87), <https://dx.doi.org/10.14507/epaa.v22n87.2014>

David Figlio and Cassandra M.D. Hart (2014), Competitive Effects of Means-Tested School Vouchers, *American Economic Journal: Applied Economics*, 6(1), pp. 133–156, <https://dx.doi.org/10.1257/app.6.1.133>

Anna J. Egalite (2014), *Competitive Impacts of Means-Tested Vouchers on Public School Performance: Evidence from Louisiana and Indiana*, Program on Education Policy and Governance (PEPG 14-05), Harvard University, retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=660A91BD10C9532CC2021ABA5DA04F8D?doi=10.1.1.696.8049&rep=rep1&type=pdf>

Rajashri Chakrabarti (2013), Vouchers, Public School Response, and the Role of Incentives: Evidence from Florida, *Economic Inquiry*, 51(1), pp. 500–526, <https://dx.doi.org/10.1111/j.1465-7295.2012.00455.x>

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# **CIVIC VALUES AND PRACTICES**

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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.

Since the last edition of *The 123s of School Choice*, a study was published examining the relationship between participating in Milwaukee’s voucher program and criminal activity. The analysis found “exposure to private schooling through a voucher is associated with lower rates of criminal activity,” such as committing misdemeanors, felonies, and theft.

## Summary of Studies

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

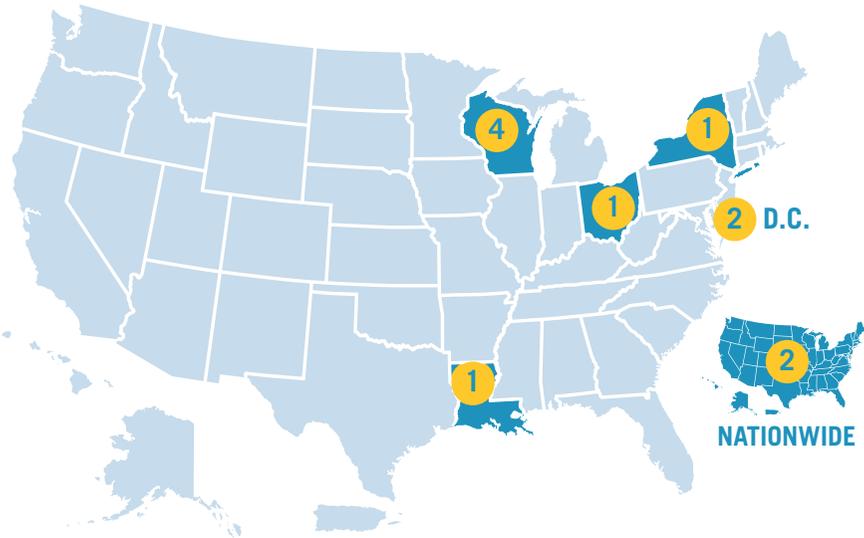
These studies examined two voucher programs and at least three privately funded scholarship programs across five states. Of the 11 studies examining the effects of private school choice programs on public school test scores, six have found positive effects, five studies have found no visible effect,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

# Academic Outcomes of Public Schools from All Empirical Studies

Author(s)	Program Name
DeAngelis and Wolf	Milwaukee Parental Choice Program
DeAngelis and Wolf	Milwaukee Parental Choice Program
Mills et al.	Louisiana Scholarship Program
Fleming, Mitchell, and McNally	Milwaukee Parental Choice Program
Fleming	Milwaukee Parental Choice Program
Carlson, Chingos, and Campbell	
Bettinger and Slonim	
Howell and Peterson	
Campbell	
Peterson and Campbell	
Wolf, Peterson, and West	

V = Voucher , P = Private Scholarship

## Number of Studies on Civic Values and Practices by Location



Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Milwaukee, WI	V	2019	✓		
Milwaukee, WI	V	2018		○	
Louisiana	V	2016		○	
Milwaukee, WI	V	2014	✓		
Milwaukee, WI	V	2014	✓		
New York, NY	P	2017		○	
Toledo, OH	P	2006	✓		
Washington, D.C.	P	2006		○	
National	P	2002	✓		
Nationwide	P	2001		○	
Washington, D.C.	P	2001	✓		

Notes: This table shows all empirical studies using all methods. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

## 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. The majority of these studies have been peer reviewed and published in academic journals. Two forthcoming journal articles,

an unpublished manuscript, and a conference presentation are also included in this review. This review includes random assignment and nonexperimental studies.

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.<sup>7</sup>

## 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 Crime: Evidence from Milwaukee, *Social Science Quarterly*, 100(6), pp. 2302–2315, <https://doi.org/10.1111/ssqu.12698>

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* (EDRE Working Paper 2018-13), <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 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>

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>

David E. Campbell (2002), *The Civic Side of School Reform: How Do School Vouchers Affect Civic Education?* (Working Paper of the Center for the Study of Democratic Politics), Princeton University, provided by author via email on March 9, 2017

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>

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# **RACIAL / ETHNIC INTEGRATION**

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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.<sup>8</sup> Furthermore, racial sorting in public schools has increased or lagged improvements in neighborhood integration over the past few decades.<sup>9</sup> 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 are a number of issues and questions that must be tackled when measuring the impact of school choice programs on integration.

- **What is the standard for determining if a school becomes more or less integrated?**

Is a school integrated when it matches the demographic characteristics of its neighborhood? The city? The county? The state? This matters because picking different comparison groups can yield completely different findings.<sup>10</sup>

- **Which perspective should be used to determine if a choice program increases or decreases segregation?**

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. 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?

- **What unit of analysis is appropriate?**

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.

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 below 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.)

## Segregation Effects, Possible Outcomes After Student Transferred via 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

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.

## Additional Research Context

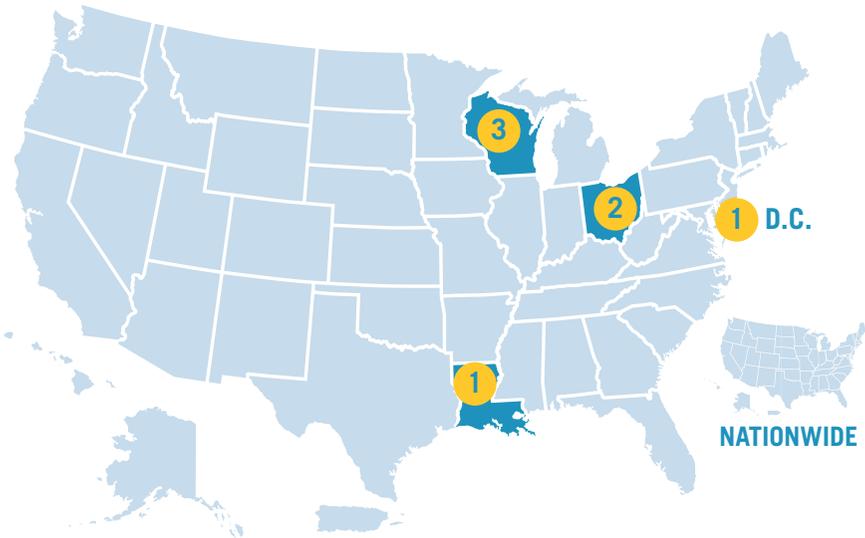
Elise Swanson surveyed the literature on the effects of various school choice sectors (magnet, charters, and private) on integration in schools. In her review of studies on voucher programs, she reviewed eight studies, finding that seven studies found voucher programs improved school integration and 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.”<sup>11</sup>

# Racial Integration from All Empirical Studies

Author(s)	Program Name
Egalite, Mills, and Wolf	Louisiana Scholarship Program
Greene, Mills, and Buck	Milwaukee Parental Choice Program
Greene and Winters	Opportunity Scholarship Program
Forster	Milwaukee Parental Choice Program
Forster	Cleveland Scholarship Program
Fuller and Mitchell	Milwaukee Parental Choice Program
Greene	Cleveland Scholarship Program

V = Voucher

## Number of Studies on Racial/Ethnic Integration by Location



Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Louisiana	V	2017	✓		
Milwaukee, WI	V	2010		○	
Washington, D.C.	V	2007	✓		
Milwaukee, WI	V	2006	✓		
Cleveland, OH	V	2006	✓		
Milwaukee, WI	V	2000	✓		
Cleveland, OH	V	1999	✓		

*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. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

## 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>

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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>





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# FISCAL EFFECTS

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FEDERAL RESERVE

HB 86116395 I  
B2



THIS NOTE IS LEGAL TENDER  
FOR ALL DEBTS, PUBLIC AND PRIVATE

*Anne S. Escobedo Cabral*  
Treasurer of the United States

SERIES  
2006

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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 found that 29 percent of respondents opposed to ESAs indicated that diverting funding away from public schools is the most important reason for their opposition.<sup>12</sup> In light of such concerns, policymakers often want to better understand the fiscal effects of these programs.

The fiscal question is a complicated one. School funding comes from several different sources (federal, state, and local governments), and school funding formulas themselves are exceedingly complex. The distribution of the fiscal effects among different taxpayers and public school districts can be highly uneven.

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 K–12 public school 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.

A report released last year updated a previous fiscal analysis of the Pennsylvania Educational Improvement Tax Credit Program and included a new analysis of the Opportunity Scholarship Tax Credit Program. Based on a range of assumptions about the share of scholarship students who would have enrolled in public schools in a world without the scholarship programs, the EITC and OSTC combined generated overall net fiscal benefits worth between \$4,000 and \$6,800 per scholarship. Another fiscal analysis, of Arizona’s four tax-credit scholarship programs, estimated these programs generated an overall net fiscal benefit worth between \$35 million and \$285 million for FY 2018 for the state.

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.

# Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies

Author(s)	Program Name
PEER Mississippi*	Mississippi Education Scholarship Account
Lueken	Opportunity Scholarship Program
Lueken	John M. McKay Scholarships for Students with Disabilities Program
Lueken	Georgia Special Needs Scholarship Program
Lueken	Choice Scholarship Program
Lueken	Louisiana Scholarship Program
Lueken	School Choice Program for Certain Students with Exceptionalities
Lueken	Mississippi Dyslexia Therapy Scholarship for Students with Dyslexia Program
Lueken	Cleveland Scholarship Program
Lueken	Autism Scholarship Program
Lueken	Educational Choice Scholarship Program
Lueken	Jon Peterson Special Needs Scholarship Program
Lueken	Lindsey Nicole Henry Scholarships for Students with Disabilities
Lueken	Carson Smith Special Needs Scholarship Program
Lueken	Milwaukee Parental Choice Program
Lueken	Parental Private School Choice Program (Racine)
Trivitt and DeAngelis	Succeed Scholarship Program
Wisconsin LAB†	Special Needs Scholarship Program
DeAngelis and Trivitt	Louisiana Scholarship Program
Trivitt and DeAngelis	Louisiana Scholarship Program
Spalding	Opportunity Scholarship Program‡
Wolf and McShane	Opportunity Scholarship Program‡
Costrell	Milwaukee Parental Choice Program
Aud	Town Tuitioning Program
Aud	Town Tuitioning Program
Aud	John M. McKay Scholarships for Students with Disabilities Program
Aud	Opportunity Scholarship Program‡
Aud	Opportunity Scholarship Program‡
Aud	Cleveland Scholarship Program
Aud	Autism Scholarship Program
Aud	Carson Smith Special Needs Scholarship Program

ESA = Education Savings Account , V = Voucher , TCS = Tax-Credit Scholarship P = Private Scholarship

\*Joint Legislative Committee on Performance Evaluation and Expenditure Review

†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.

Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Mississippi	ESA	2018			X
Washington, D.C.	V	2018	✓		
Florida	V	2018	✓		
Georgia	V	2018	✓		
Indiana	V	2018	✓		
Louisiana	V	2018	✓		
Louisiana	V	2018			X
Mississippi	V	2018	✓		
Cleveland, OH	V	2018	✓		
Ohio	V	2018	✓		
Ohio	V	2018	✓		
Ohio	V	2018	✓		
Oklahoma	V	2018	✓		
Utah	V	2018			
Milwaukee, WI	V	2018	✓		
Racine, WI	V	2018	✓		
Arkansas	V	2018	✓		
Wisconsin	V	2018		○	
Louisiana	V	2016	✓		
Louisiana	V	2016	✓		
Florida	V	2014	✓		
Washington, D.C.	V	2013	✓		
Milwaukee, WI	V	2010	✓		
Vermont	V	2007		○	
Maine	V	2007		○	
Florida	V	2007	✓		
Florida	V	2007	✓		
Washington, D.C.	V	2007	✓		
Cleveland, OH	V	2007	✓		
Ohio	V	2007	✓		
Utah	V	2007		○	

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. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect." Lueken (2019) includes an update of an earlier fiscal analysis of Pennsylvania's Educational Improvement Tax Credit Program and replaces 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>

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

Author(s)	Program Name
Aud	Milwaukee Parental Choice Program
Aud and Michos	Opportunity Scholarship Program
Sheasby	All four tax-credit scholarship programs§
Lueken	Educational Improvement Tax Credit Program
Lueken	Opportunity Scholarship Tax Credit Program
Dearmon and Evans	Oklahoma Equal Opportunity Education Scholarships
Lueken	Original Individual Income Tax Credit Scholarship Program
Lueken	Low-Income Corporate Income Tax Credit Scholarship Program
Lueken	Lexie's Law for Disabled and Displaced Students Tax Credit Scholarship Program
Lueken	"Switcher" Individual Income Tax Credit Scholarship Program
Lueken	Florida Tax Credit Scholarship Program
Lueken	Qualified Education Expense Tax Credit
Lueken	School Scholarship Tax Credit
Lueken	School Tuition Organization Tax Credit
Lueken	Tax Credits for Contributions to Scholarship Organizations
Girardi and Gullickson	School Tuition Organization Tax Credit
SummaSource	Alabama Education Scholarship Program
LOEDR#	Florida Tax Credit Scholarship Program
OPPAGA**	Florida Tax Credit Scholarship Program
Aud	Original Individual Income Tax Credit Scholarship Program
Aud	Educational Improvement Tax Credit Program
Aud	Florida Tax Credit Scholarship Program
Collins Center for Public Policy	Florida Tax Credit Scholarship Program
Merrifield & Gray	

ESA = Education Savings Account , V = Voucher , TCS = Tax-Credit Scholarship , P = Private Scholarship

§Results could not be broken out by program.

#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)

Location	Program Type	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Milwaukee, WI	V	2007	✓		
Washington, D.C.	V	2006	✓		
Arizona	TCS	2020	✓		
Pennsylvania	TCS	2019	✓		
Pennsylvania	TCS	2019	✓		
Oklahoma	TCS	2018	✓		
Arizona	TCS	2018	✓		
Arizona	TCS	2018	✓		
Arizona	TCS	2018	✓		
Arizona	TCS	2018	✓		
Florida	TCS	2018	✓		
Georgia	TCS	2018	✓		
Indiana	TCS	2018	✓		
Iowa	TCS	2018	✓		
Rhode Island	TCS	2018	✓		
Iowa	TCS	2017	✓		
Alabama	TCS	2017	✓		
Florida	TCS	2012	✓		
Florida	TCS	2008	✓		
Arizona	TCS	2007	✓		
Pennsylvania	TCS	2007	✓		
Florida	TCS	2007	✓		
Florida	TCS	2007	✓		
San Antonio, TX	P	2009	✓		

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. If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect." Lueken (2019) includes an update of an earlier fiscal analysis of Pennsylvania's Educational Improvement Tax Credit Program and replaces 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>

# Summary of Studies

	Total Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Fiscal Effects	55	49	4	2

Analyses reviewed here cover 20 voucher programs, 12 tax-credit scholarship programs, one education savings account program, and one privately funded scholarship program across 17 states and D.C. Of 55 studies on the fiscal effects of private school choice programs, 49 found that programs generated net savings for taxpayers. Four found those programs were cost-neutral, and two studies estimated that a program generated net costs.

## 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 program, 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.



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>

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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/2014/09/School-Voucher-Audit-Do-Publicly-Funded-Private-School-Choice-Programs-Save-Money.pdf>

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](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 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>

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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>

# APPENDIX

## 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 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 consumers 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 both creates research related to private school choice and regularly uses it, we think it is important to both summarize the extant literature on the topic and speak frankly about both their 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?”<sup>1</sup> 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, while the DC Opportunity Scholarship is \$8,857 for elementary school students and \$13,287 for high school students. In Louisiana, participating schools have to take the Louisiana state standardized test, in Florida’s 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 more expensive schools, others require participating schools to accept the voucher for the full cost of the program. 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

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<sup>1</sup>Gertrude Stein (1922), *Geography and Plays*

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.

Secondly, it is 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 all of these people 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.<sup>ii</sup> 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 Trial Studies?***

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

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<sup>ii</sup>Collin Hitt, Michael Q. McShane, and Patrick J. Wolf (2018), *Do Impacts on Test Scores Even Matter? Lessons from Long-Run Outcomes in School Choice Research: Attainment Versus Achievement Impacts and Rethinking How to Evaluate School Choice Programs*, retrieved from American Enterprise Institute website: <http://www.aei.org/wp-content/uploads/2018/04/Do-Impacts-on-Test-Scores-Even-Matter.pdf>; Corey A. DeAngelis (2018), *Divergences between Effects on Test Scores and Effects on Non-Cognitive Skills*, <https://dx.doi.org/10.2139/ssrn.3273422>

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 a randomized control trial, 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” [emphasis added].<sup>iii</sup>

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).

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<sup>iii</sup>What Works Clearinghouse (2014), *Procedures and Standards Handbook: Version 3.0*, retrieved from Institute of Education Sciences website: [https://ies.ed.gov/ncee/wwc/docs/referenceresources/wwc\\_procedures\\_v3\\_0\\_standards\\_handbook.pdf](https://ies.ed.gov/ncee/wwc/docs/referenceresources/wwc_procedures_v3_0_standards_handbook.pdf)

Researchers that conduct RCT studies (also called “random assignment” 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 its 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, 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 reported 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.

## ***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 one program excessively influencing the results. 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.

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.

## ***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. Where possible, we cite relevant meta-analyses and systematic reviews that have been conducted on the literature of the particular topics that we explore.

Now that we have that out of the way, 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 STUDIES BY PROGRAM TYPE

## Research Studies on ESA Programs

Author(s)	Program Name
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>	
Catt and Cheng	Empowerment Scholarship Accounts
Kittredge	Equal Opportunity for Students with Special Needs Program
Butcher and Bedrick	Empowerment Scholarship Accounts
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>	
PEER Mississippi*	Mississippi Education Scholarship Account

\*Joint Legislative Committee on Performance Evaluation and Expenditure Review

Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Arizona	2019	✓		X
Mississippi	2016	✓		
Arizona	2013	✓		
Mississippi	2018			X

*Notes:* If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Voucher Programs

Author(s)	Program Name
<b>Test Score Outcome of Participants from Random Assignment Studies</b>	
Webber et al.	Opportunity Scholarship Program
Mills and Wolf	Louisiana Scholarship Program
Abdulkadiroglu, Pathak, and Walters	Louisiana Scholarship Program
Wolf et al.	Opportunity Scholarship Program
Lamarche	Milwaukee Parental Choice Program
Greene, Peterson, and Du	Milwaukee Parental Choice Program
Rouse	Milwaukee Parental Choice Program
<b>Attainment Outcomes of Participants from All Empirical Studies</b>	
Chingos et al.	Opportunity Scholarship Program
Chingos et al.	Milwaukee Parental Choice Program
Erickson, Mills, and Wolf	Louisiana Scholarship Program
Wolf et al.	Opportunity Scholarship Program
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>	
Department of Public Instruction	Special Needs Scholarship Program
Catt and Rhinesmith	Choice Scholarship Program
Egalite, Gray, and Stallings	Opportunity Scholarships
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit
Black	John M. McKay Scholarships for Students with Disabilities Program
Kisida and Wolf	Opportunity Scholarship Program
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit
Witte et al.	Milwaukee Parental Choice Program
Weidner and Herrington	John M. McKay Scholarships for Students with Disabilities Program
Greene and Forster	John M. McKay Scholarships for Students with Disabilities Program
Witte	Milwaukee Parental Choice Program
Metcalf	Cleveland Scholarship Program

\*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.

Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Washington, D.C.	2019		○	
Louisiana	2019			X
Louisiana	2018			X
Washington, D.C.	2013	✓		
Milwaukee, WI	2008	✓		X
Milwaukee, WI	1999	✓		
Milwaukee, WI	1998	✓		
Washington, D.C.	2019		○	
Milwaukee, WI	2019	✓		
Louisiana	2018		○	
Washington, D.C.	2013	✓		
Wisconsin	2018	✓		
Indiana	2017	✓		
North Carolina	2017	✓		
Indiana	2016	✓		
Florida	2015		○	
Washington, D.C.	2015	✓		
Indiana	2014	✓		
Milwaukee, WI	2008	✓		
Florida	2006	✓		
Florida	2003	✓		
Milwaukee, WI	2000	✓		
Cleveland, OH	1999	✓		

Notes: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Voucher Programs

Author(s)	Program Name
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b> <i>(continued)</i>	
Peterson, Howell, and Greene	Cleveland Scholarship Program
Greene, Howell, and Peterson	Cleveland Scholarship Program
<b>Academic Outcomes of Public Schools from All Empirical Studies</b>	
Egalite and Mills	Louisiana Scholarship Program
Figlio and Karbownik	Educational Choice Scholarship Program
Bowen and Trivitt	Opportunity Scholarship Program‡
Egalite	Choice Scholarship Program
Chakrabarti	Opportunity Scholarship Program‡
Carr	Educational Choice Scholarship Program
Winters and Greene	John M. McKay Scholarships for Students with Disabilities Program
Mader	Milwaukee Parental Choice Program
Greene and Marsh	Milwaukee Parental Choice Program
Chakrabarti	Milwaukee Parental Choice Program
Forster	Educational Choice Scholarship Program
Forster	Opportunity Scholarship Program‡
Carnoy et al.	Milwaukee Parental Choice Program
Greene and Winters	Opportunity Scholarship Program
Figlio and Rouse	Opportunity Scholarship Program‡
West and Peterson	Opportunity Scholarship Program‡
Greene and Winters	Opportunity Scholarship Program‡
Greene and Forster	Milwaukee Parental Choice Program
Hammons	Town Tuitioning Program
Hammons	Town Tuitioning Program
Hoxby	Milwaukee Parental Choice Program
Greene	Opportunity Scholarship Program‡

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

Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Milwaukee, WI	1999	✓		
Cleveland, OH	1998	✓		
Louisiana	2020	✓		
Ohio	2016	✓		
Florida	2014			X
Indiana	2014	✓		
Florida	2013	✓		
Ohio	2011	✓		
Florida	2011	✓		
Milwaukee, WI	2010	✓		
Milwaukee, WI	2009	✓		
Milwaukee, WI	2008	✓		
Ohio	2008	✓		
Florida	2008	✓		
Milwaukee, WI	2007	✓		
Washington, D.C.	2007		○	
Florida	2006	✓		
Florida	2006	✓		
Florida	2004	✓		
Milwaukee, WI	2002	✓		
Maine	2002	✓		
Vermont	2002	✓		
Milwaukee, WI	2002	✓		
Florida	2001	✓		

Notes: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Voucher Programs

Author(s)	Program Name
<b>Civic Values and Practices from All Empirical Studies</b>	
DeAngelis and Wolf	Milwaukee Parental Choice Program
DeAngelis and Wolf	Milwaukee Parental Choice Program
Mills et al.	Louisiana Scholarship Program
Fleming, Mitchell, and McNally	Milwaukee Parental Choice Program
Fleming	Milwaukee Parental Choice Program
<b>Racial Integration from All Empirical Studies</b>	
Egalite, Mills, and Wolf	Louisiana Scholarship Program
Greene, Mills, and Buck§	Milwaukee Parental Choice Program
Greene and Winters	Opportunity Scholarship Program
Forster	Milwaukee Parental Choice Program
Forster	Cleveland Scholarship Program
Fuller and Mitchell	Milwaukee Parental Choice Program
Greene	Cleveland Scholarship Program
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>	
Lueken	Opportunity Scholarship Program
Lueken	John M. McKay Scholarships for Students with Disabilities Program
Lueken	Georgia Special Needs Scholarship Program
Lueken	Choice Scholarship Program
Lueken	Louisiana Scholarship Program
Lueken	School Choice Program for Certain Students with Exceptionalities
Lueken	Mississippi Dyslexia Therapy Scholarship for Students with Dyslexia Program
Lueken	Cleveland Scholarship Program
Lueken	Autism Scholarship Program
Lueken	Educational Choice Scholarship Program
Lueken	Jon Peterson Special Needs Scholarship Program
Lueken	Lindsey Nicole Henry Scholarships for Students with Disabilities

§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.

Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Milwaukee, WI	2019	✓		
Milwaukee, WI	2018		○	
Louisiana	2016		○	
Milwaukee, WI	2014	✓		
Milwaukee, WI	2014	✓		
Louisiana	2017	✓		
Milwaukee, WI	2010		○	
Washington, D.C.	2007	✓		
Milwaukee, WI	2006	✓		
Cleveland, OH	2006	✓		
Milwaukee, WI	2000	✓		
Cleveland, OH	1999	✓		
		✓		
Washington, D.C.	2018	✓		
Florida	2018	✓		
Georgia	2018	✓		
Indiana	2018	✓		
Louisiana	2018	✓		
Louisiana	2018			X
Mississippi	2018	✓		
Cleveland, OH	2018	✓		
Ohio	2018	✓		
Ohio	2018	✓		
Ohio	2018	✓		
Oklahoma	2018	✓		

Notes: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Voucher Programs

Author(s)	Program Name
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b> <i>(continued)</i>	
Lueken	Carson Smith Special Needs Scholarship Program
Lueken	Milwaukee Parental Choice Program
Lueken	Parental Private School Choice Program (Racine)
Trivitt and DeAngelis	Succeed Scholarship Program
Wisconsin LAB#	Special Needs Scholarship Program
DeAngelis and Trivitt	Louisiana Scholarship Program
Trivitt and DeAngelis	Louisiana Scholarship Program
Spalding	Opportunity Scholarship Program‡
Wolf and McShane	Opportunity Scholarship Program
Costrell	Milwaukee Parental Choice Program
Aud	Town Tuitioning Program
Aud	Town Tuitioning Program
Aud	John M. McKay Scholarships for Students with Disabilities Program
Aud	Opportunity Scholarship Program‡
Aud	Opportunity Scholarship Program
Aud	Cleveland Scholarship Program
Aud	Autism Scholarship Program
Aud	Carson Smith Special Needs Scholarship Program
Aud	Milwaukee Parental Choice Program
Aud and Michos	Opportunity Scholarship Program

‡The Florida Supreme Court declared that the private school voucher component of the program was unconstitutional in January 2006.  
 #State of Wisconsin Legislative Audit Bureau

Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Utah	2018	✓		
Milwaukee, WI	2018	✓		
Racine, WI	2018	✓		
Arkansas	2018	✓		
Wisconsin	2018		○	
Louisiana	2016	✓		
Louisiana	2016	✓		
Florida	2014	✓		
Washington, D.C.	2013	✓		
Milwaukee, WI	2010	✓		
Vermont	2007		○	
Maine	2007		○	
Florida	2007	✓		
Florida	2007	✓		
Washington, D.C.	2007	✓		
Cleveland, OH	2007	✓		
Ohio	2007	✓		
Utah	2007		○	
Milwaukee, WI	2007	✓		
Washington, D.C.	2006	✓		

Notes: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Tax-Credit Scholarship Programs

Author(s)	Program Name
<b>Attainment Outcomes of Participants from All Empirical Studies</b>	
Chingos et al.	Florida Tax Credit Scholarship Program
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>	
Catt and Cheng	All four tax-credit scholarship programs*
Catt and Rhinesmith	School Scholarship Tax Credit
Department of Revenue Administration	Education Tax Credit Program
Catt and Rhinesmith†	Choice Scholarship Program/School Scholarship Tax Credit
DiPerna‡	Choice Scholarship Program/School Scholarship Tax Credit
Kelly and Scafidi	Qualified Education Expense Tax Credit
<b>Academic Outcomes of Public Schools from All Empirical Studies</b>	
Figlio et al.	Florida Tax Credit Scholarship Program
Figlio and Hart	Florida Tax Credit Scholarship Program
Rouse et al.	Florida Tax Credit Scholarship Program
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>	
Sheasby	All four tax-credit scholarship programs*
Lueken	Educational Improvement Tax Credit Program
Lueken	Opportunity Scholarship Tax Credit Program
Dearmon and Evans	Oklahoma Equal Opportunity Education Scholarships
Lueken	Original Individual Income Tax Credit Scholarship Program
Lueken	Low-Income Corporate Income Tax Credit Scholarship Program
Lueken	Lexie's Law for Disabled and Displaced Students Tax Credit Scholarship Program
Lueken	"Switcher" Individual Income Tax Credit Scholarship Program
Lueken	Florida Tax Credit Scholarship Program
Lueken	Qualified Education Expense Tax Credit
Lueken	School Scholarship Tax Credit
Lueken	School Tuition Organization Tax Credit
Lueken	Tax Credits for Contributions to Scholarship Organizations
Girardi and Gullickson	School Tuition Organization Tax Credit
SummaSource	Alabama Education Scholarship Program
LOEDR§	Florida Tax Credit Scholarship Program
OPPAGA#	Florida Tax Credit Scholarship Program
Aud	Original Individual Income Tax Credit Scholarship Program
Aud	Educational Improvement Tax Credit Program
Aud	Florida Tax Credit Scholarship Program
Collins Center for Public Policy	Florida Tax Credit Scholarship Program

\*Results could not be broken out by program and reflect responses by parents with children attending private schools via any of Arizona's four tax-credit scholarship programs.

†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.

Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
Florida	2019	✓		
Arizona	2019	✓		X
Indiana	2017	✓		
New Hampshire	2017	✓		
Indiana	2016	✓		
Indiana	2015	✓		
Georgia	2013	✓		
Florida	2020	✓		
Florida	2014	✓		
Florida	2013	✓		
Arizona	2020	✓		
Pennsylvania	2019	✓		
Pennsylvania	2019	✓		
Oklahoma	2018	✓		
Arizona	2018	✓		
Arizona	2018	✓		
Arizona	2018	✓		
Arizona	2018	✓		
Florida	2018	✓		
Georgia	2018	✓		
Indiana	2018	✓		
Iowa	2018	✓		
Rhode Island	2018	✓		
Iowa	2017	✓		
Alabama	2017	✓		
Florida	2012	✓		
Florida	2008	✓		
Arizona	2007	✓		
Pennsylvania	2007	✓		
Florida	2007	✓		
Florida	2007	✓		

§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: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."

# Research Studies on Privately Funded Programs

Author	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Test Score Outcome of Participants from Random Assignment Studies</b>					
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	✓		
<b>Attainment Outcomes of Participants from All Empirical Studies</b>					
Cheng, Chingos, and Peterson*	New York, NY	2019	✓	○	
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>					
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	✓		
<b>Academic Outcomes of Public Schools from All Empirical Studies</b>					
Gray, Merrifield, and Adzima	San Antonio, TX	2016	✓		
Greene and Forster	San Antonio, TX	2002	✓		
<b>Civic Values and Practices from All Empirical Studies</b>					
Carlson, Chingos, and Campbell	New York, NY	2017		○	
Bettinger and Slonim	Toledo, OH	2006	✓		
Howell and Peterson	Washington, D.C.	2006		○	
Campbell	Nationwide	2002	✓		
Peterson and Campbell	Nationwide	2001		○	
Wolf et. al.	Washington, D.C.	2001	✓		
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>					
Merrifield & Gray	San Antonio, TX	2009	✓		

\*The sample and methods used in this study are the same as those used in 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>. Two main differences are framing across levels of disadvantage and more recent data added to the analysis.

Notes: If a study's analysis produced any positive or negative results or both, we classify those studies as positive, negative or both. Studies that did not produce any statistically significant results for any subgroup are classified as "no visible effect."



# NOTES

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The five of us are grateful for the time and work of our communications team. Michael Davey designed this second edition. Katie Brooks read through and copyedited several versions of the manuscript, and her suggestions and edits made significant improvements.

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