

# THE 123s OF SCHOOL CHOICE

What the research says about private school choice programs in America

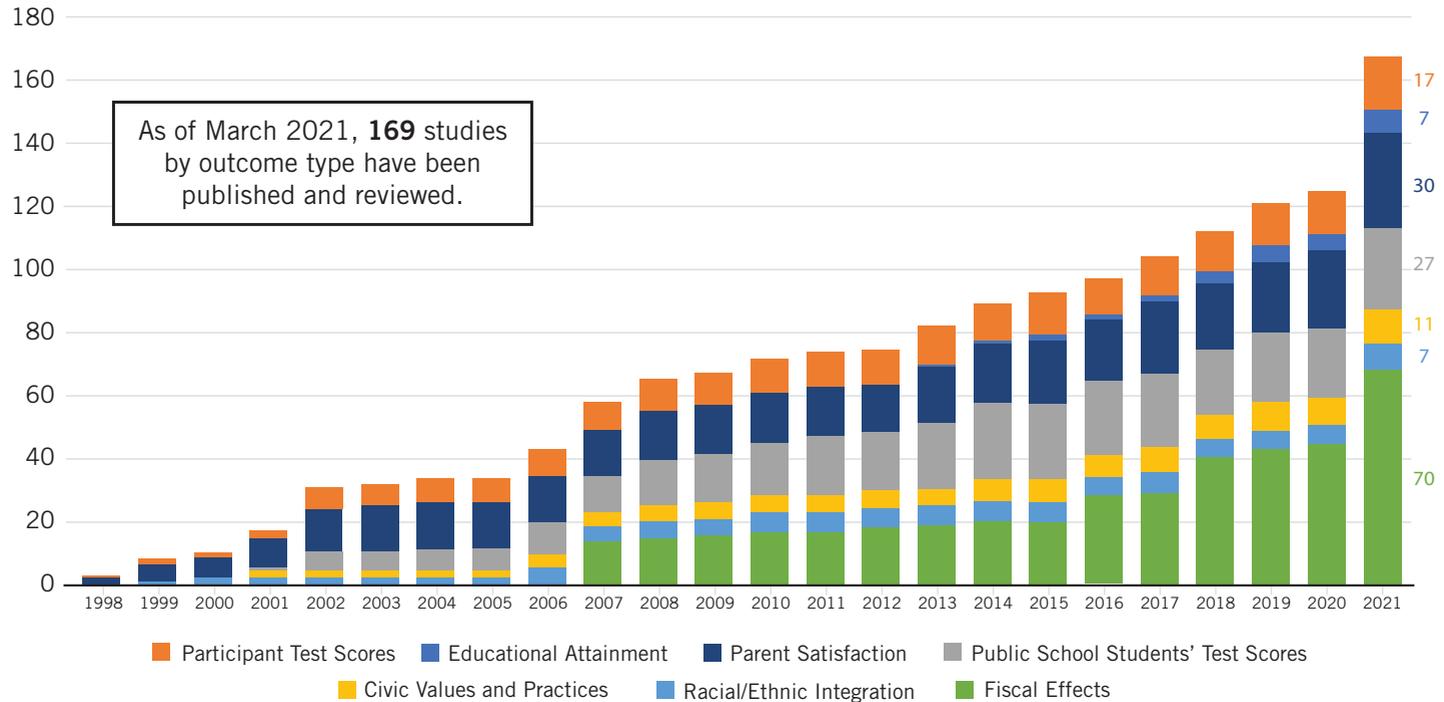
---

[edchoice.org/123s](https://edchoice.org/123s)

Last Updated 04/14/21

There are currently  
**69** private school choice programs  
and policies operating  
in  
**33** states, Washington, D.C.,  
and Puerto Rico  
with more than  
**1,355,152** families  
participating  
across the country.

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



It's imperative that we understand the effectiveness of these programs. Therefore, researchers have studied them for decades.

In this resource, we've broken down all of the **empirical studies** of U.S. **voucher, tax-credit scholarship** and **education savings account** programs to date.

- Program Participant Test Scores
- Program Participant Attainment
- Parent Satisfaction
- Public School Students' Test Scores
- Civic Values and Practices
- Racial/Ethnic Integration
- Fiscal Effects

When possible, we focus on **random assignment studies** because they provide very high internal validity, though they do not necessarily provide very high external validity compared to other research methods.

**Internal:** effects we observe are attributable to the program, not other factors

**External:** the extent to which results can be generalized to other students in other programs

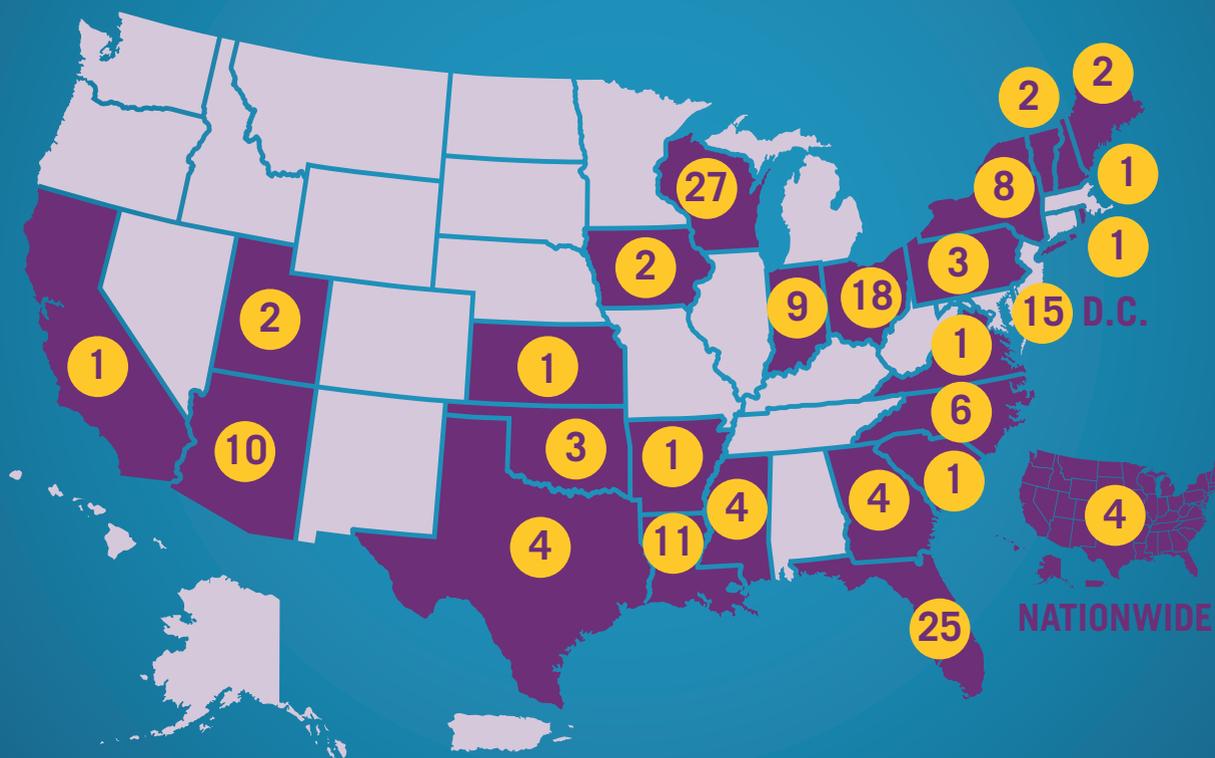
## Overall Effects Counts for Studies of Private School Choice Programs

Outcome	Number of Studies	Any Positive Effect	No Visible Effect	Any Negative Effect
Program Participant Test Scores	17	11	4	3
Educational Attainment	7	5	2	0
Parent Satisfaction	30	28	1	2
Public School Students' Test Scores	27	25	1	1
Civic Values and Practices	11	6	5	0
Integration*	7	6	1	0
Fiscal Effects	70	65	4	5

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

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." 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 of Private School Choice Programs by Location



---

# 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.**

Of the **17 random-assignment studies** conducted, **11** have found positive outcomes for either the full sample or at least one sub-sample of students studied. **Four** found no visible effect for any group of students, and **three** found negative outcomes for all or some students.

## Test Score Outcome of Participants from Experimental Studies

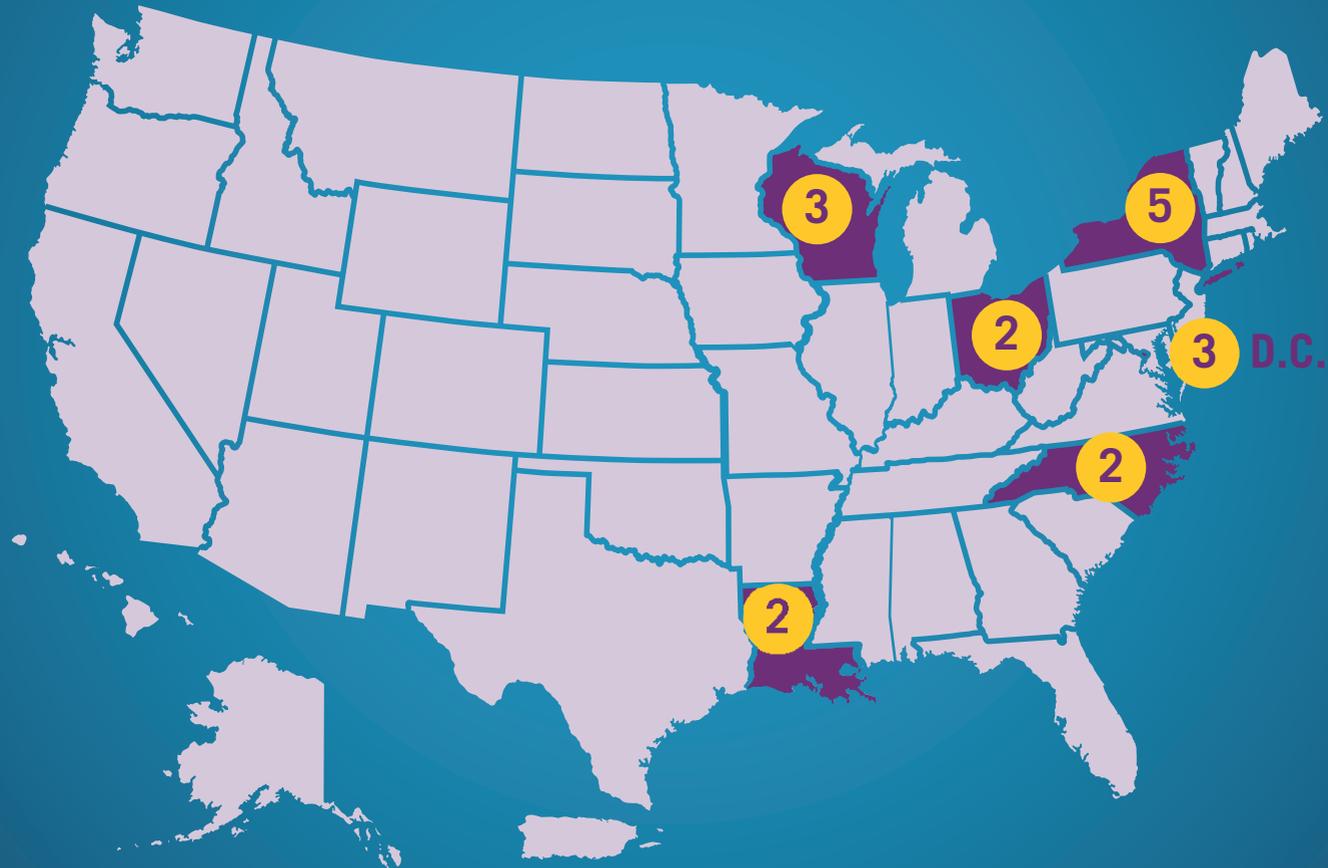
Study	Location	Program Type	Any Positive Effect		No Visible Effect		Any Negative Effect	
			All Students (full sample)	Some Students (subsamples)	All Students	Some Students	All Students	Some Students
Webber et al. (2019)	Washington, D.C.	V			○	○		
Mills and Wolf (2019)	Louisiana	V					X	X
Abdulkadiroglu, Pathak, and Walters (2018)	Louisiana	V					X	X
Wolf et al. (2013)	Washington, D.C.	V	✓	✓				
Lamarche (2008)	Milwaukee, WI	V		✓				X
Greene, Peterson, and Du (1999)	Milwaukee, WI	V	✓					
Rouse (1998)	Milwaukee, WI	V	✓	✓				
Bitler et. al. (2015)	New York, NY	P			○	○		
Jin, Barnard, and Rubin (2010)	New York, NY	P		✓				
Cowen (2008)	Charlotte, NC	P	✓					
Bettinger and Slonim (2006)	Toledo, OH	P			○			
Krueger and Zhu (2004)	New York, NY	P			○	○		
Barnard et al. (2003)	New York, NY	P		✓	○			
Howell et al. (2002)	Washington, D.C.	P	✓	✓				
Howell et al. (2002)	New York, NY	P	✓	✓				
Howell et al. (2002)	Dayton, OH	P		✓	○			
Greene (2001)	Charlotte, NC	P	✓					

V=Voucher

P=Private scholarship

Note: Table includes only random assignment studies, the gold-standard of research methods.

# Number of Studies on Program Participant Test Scores by Location



---

# 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.**

Of the **seven studies** that have examined educational attainment outcomes, **five** have found positive effects on educational attainment for at least one subgroup of students, **two** found no visible effect for any group of students, and **no studies** have found negative effects for any group of students.

## Attainment Outcomes of Participants from All Empirical Studies

Study	Location	Program Type	Any Positive Effect		No Visible Effect		Any Negative Effect	
			All Students (full sample)	Some Students (subsamples)	All Students (full sample)	Some Students (subsamples)	All Students (full sample)	Some Students (subsamples)
Austin and Pardo (2021)	Indiana	V	✓					
Chingos et al. (2019)	Washington, D.C.	V			○	○		
Chingos et al. (2019)	Milwaukee, WI	V	✓					
Erickson, Mills, and Wolf (2019)	Louisiana	V			○	○		
Wolf et al. (2013)	Washington, D.C.	V	✓	✓				
Chingos et al. (2019)	Florida	TCS	✓	✓				
Cheng and Peterson* (2020)	New York, NY	P		✓	○			

*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.

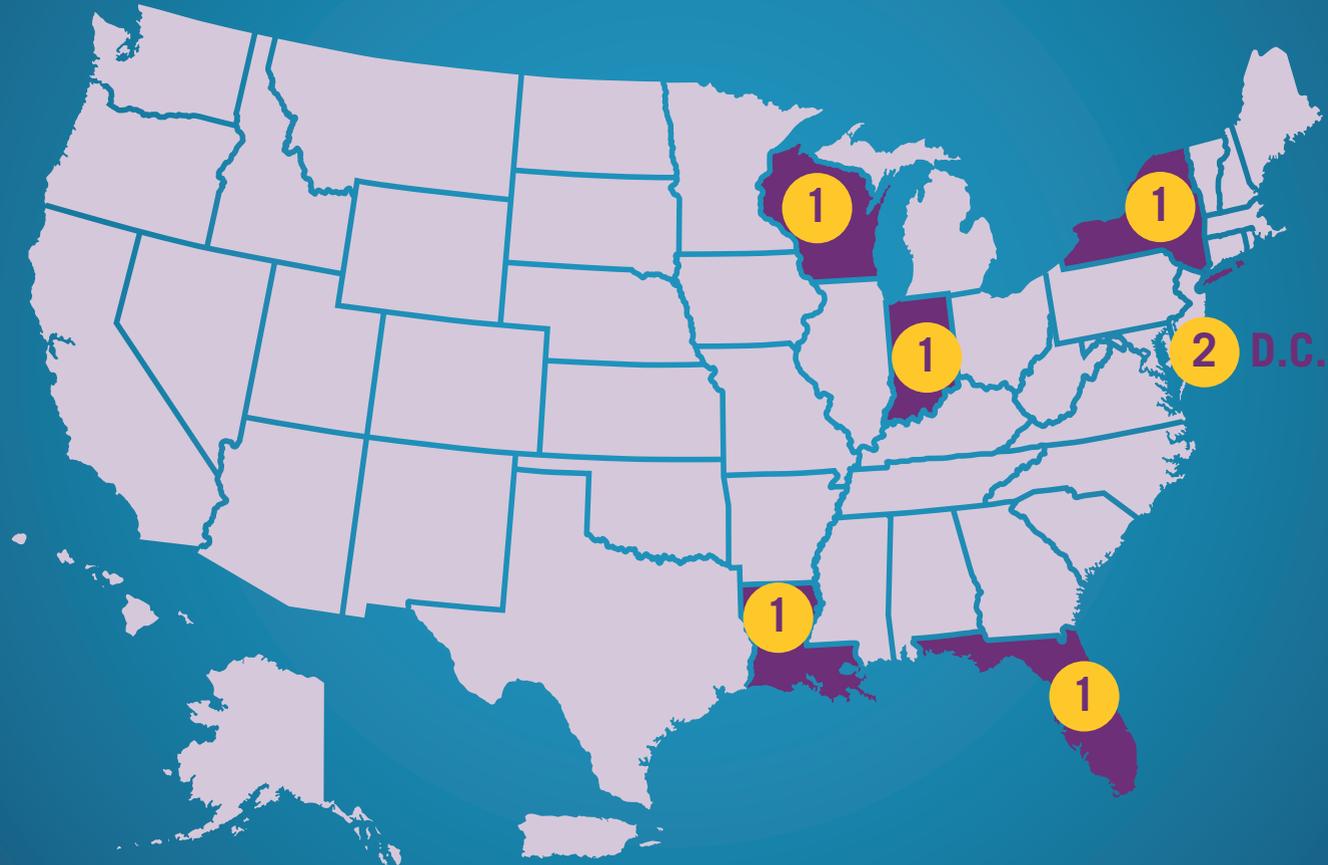
\*The sample and methods used in this study are the same as those used in Matthew M. Chingos and Paul E. Peterson (2015), Experimentally Estimated Impacts of School Vouchers on College Enrollment and Degree Attainment, *Journal of Public Economics*, 122, pp. 1–12, <https://dx.doi.org/10.1016/j.jpubeco.2014.11.013>. Two main differences are framing across levels of disadvantage and more recent data added to the analysis.

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

# Number of Studies on Attainment Outcomes of Participants by Location



---

# PARENT SATISFACTION

---

These studies rely on polling and surveys to measure the extent to which **parents** with children participating in private school choice programs **are satisfied** with their current school compared to their pre-program school or to non-program students.

Of the **30 studies** that have examined school choice's impact on parent satisfaction, **28** found positive outcomes. **One** found null results, and **two** found overall negative outcomes.

## Parent Satisfaction Impacts from Private Educational Choice Programs

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Catt and Cheng (2019)	Arizona	ESA	✓		X
Kittredge (2016)	Mississippi	ESA	✓		
Butcher and Bedrick (2013)	Arizona	ESA	✓		
Department of Public Instruction (2018)	Wisconsin	V	✓		
Catt and Rhinesmith (2017)	Indiana	V	✓		
Egalite, Gray, and Stallings (2017)	North Carolina	V	✓		
Black (2015)	Florida	V		○	
Kisida and Wolf (2015)	Washington, D.C.	V	✓		
Witte et al. (2008)	Milwaukee, WI	V	✓		
Weidner and Herrington (2006)	Florida	V	✓		
Greene and Forster (2003)	Florida	V	✓		
Witte (2000)	Milwaukee, WI	V	✓		
Metcalfe (1999)	Cleveland, OH	V	✓		
Peterson, Howell, and Greene (1999)	Cleveland, OH	V	✓		
Greene, Howell, and Peterson (1998)	Cleveland, OH	V	✓		
Catt and Rhinesmith (2016)	Indiana	V/TCS*	✓		
DiPerna (2014)	Indiana	V/TCS†	✓		

*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."

\*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.

ESA=Educational savings account

V=Voucher

TCS=Tax-credit scholarship

*Continues on next slide.*

## Parent Satisfaction Impacts from Private Educational Choice Programs (continued)

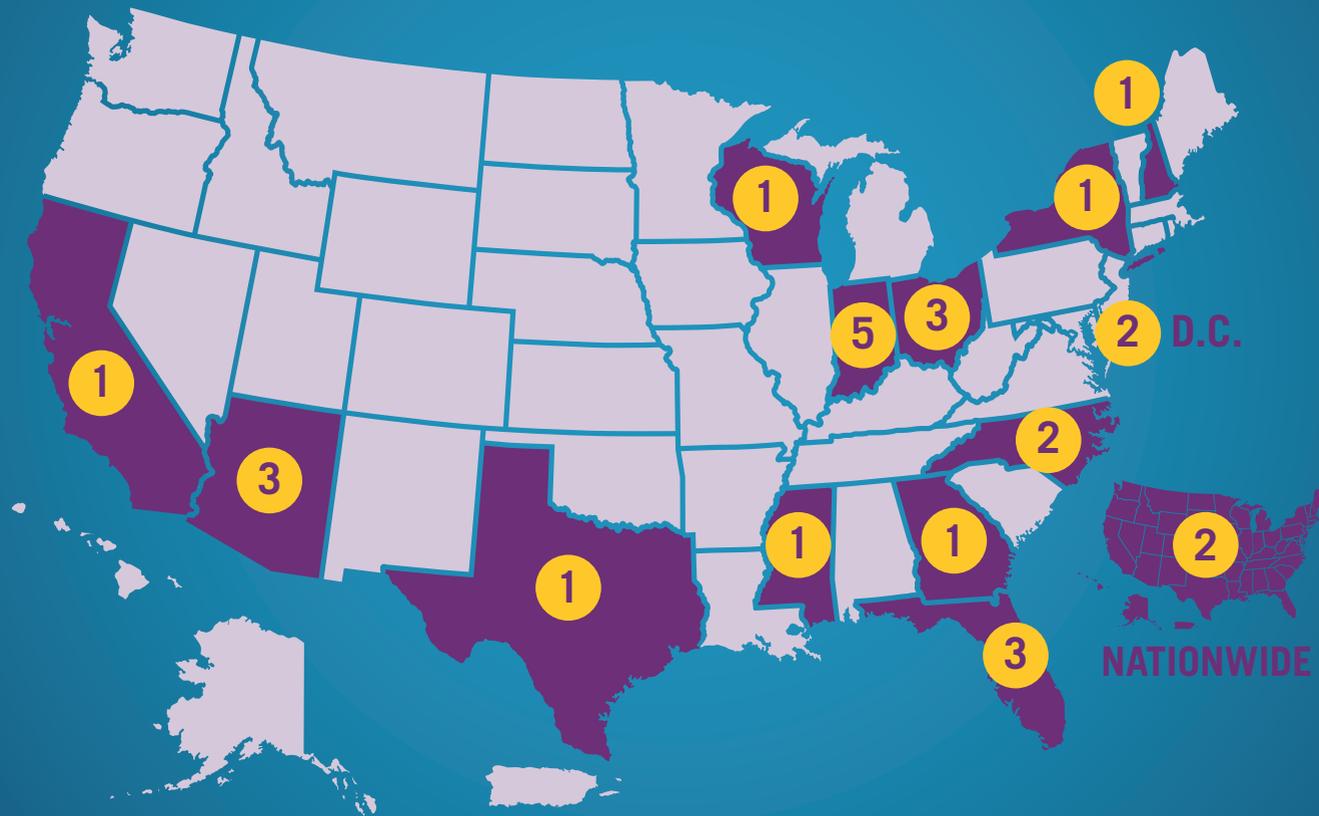
Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Catt and Cheng (2019)	Arizona	TCS	✓		X
Department of Revenue Administration (2018)	New Hampshire	TCS	✓		
Catt and Rhinesmith (2017)	Indiana	TCS	✓		
Kelly and Scafidi (2013)	Georgia	TCS	✓		
Howell and Peterson (2002)	Dayton, OH	P	✓		
Howell and Peterson (2002)	New York, NY	P	✓		
Howell and Peterson (2002)	National	P	✓		
Howell and Peterson (2002)	Washington, D.C.	P	✓		
Peterson and Campbell (2001)	National	P	✓		
Greene (2001)	Charlotte, NC	P	✓		
Peterson, Campbell, and West (2001)	San Francisco, CA	P	✓		
Peterson, Myers, and Howell (1999)	San Antonio, TX	P	✓		
Weinschrott and Kilgore (1998)	Indianapolis, IN	P	✓		

ESA=Educational savings account

V=Voucher

TCS=Tax-credit scholarship

# Number of Studies on Parent Satisfaction by Location



---

# 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.**

Of the **27 studies** that examine the competitive effects of school choice programs, **25** found positive effects, **one** found no visible effect and **one** found negative effects.

## Public School Students' Test Scores from Empirical Studies

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Egalite and Mills (2021)	Louisiana	V	✓		
Egalite and Catt (2020)	Indiana	V	✓		
Figlio and Karbownik (2016)	Ohio	V	✓		
Bowen and Trivitt (2014)	Florida	V			X
Chakrabarti (2013)	Florida	V	✓		
Carr (2011)	Ohio	V	✓		
Winters and Greene (2011)	Florida	V	✓		
Mader (2010)	Milwaukee, WI	V	✓		
Greene and Marsh (2009)	Milwaukee, WI	V	✓		
Chakrabarti (2008)	Milwaukee, WI	V	✓		
Forster (2008)	Ohio	V	✓		
Forster (2008)	Florida	V	✓		
Carnoy et al. (2007)	Milwaukee, WI	V	✓		
Greene and Winters (2007)	Washington, D.C.	V	✓		

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

*Continues on next slide.*

## Public School Students' Test Scores from Empirical Studies (continued)

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Figlio and Rouse (2006)	Florida	V	✓		
West and Peterson (2006)	Florida	V	✓		
Greene and Winters (2004)	Florida	V		○	
Greene and Forster (2002)	Milwaukee, WI	V	✓		
Hammons (2002)	Maine	V	✓		
Hammons (2002)	Vermont	V	✓		
Hoxby (2002)	Milwaukee, WI	V	✓		
Greene (2001)	Florida	V	✓		
Figlio et al. (2020)	Florida	TCS	✓		
Figlio and Hart (2014)	Florida	TCS	✓		
Rouse et al. (2013)	Florida	TCS	✓		
Gray, Merrifield, and Adzima (2016)	San Antonio, TX	P	✓		
Greene and Forster (2002)	San Antonio, TX	P	✓		

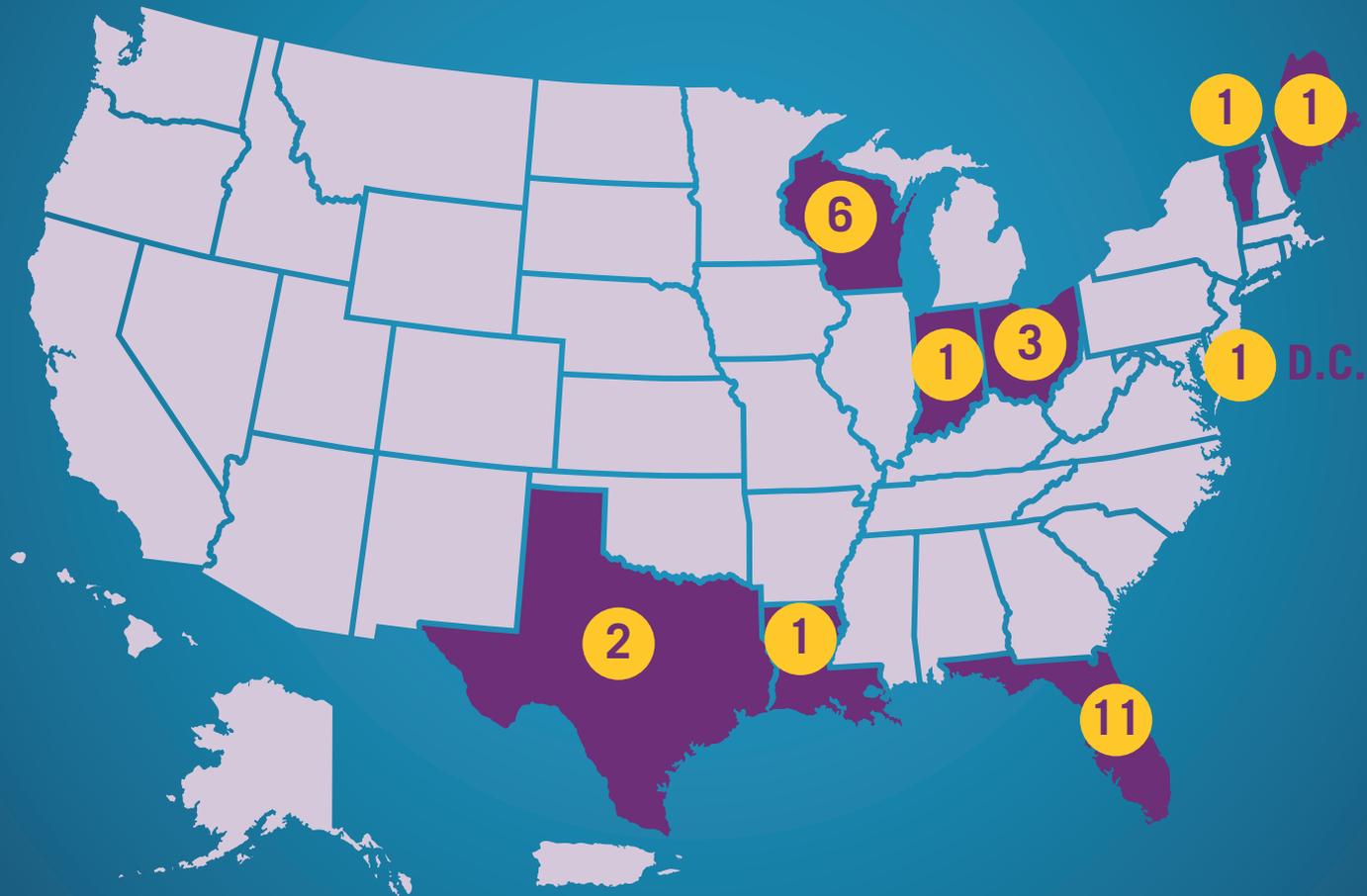
V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

*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 Students' Test Score by Location



---

# CIVIC VALUES AND PRACTICES

---

These studies examine whether school choice programs have an effect on students' **tolerance for the rights of others, civic knowledge, engaging in criminal activity, civic participation, volunteerism, social capital, civic skills, voter registration and voter turnout** as well as **patriotism**.

Of the **11 studies** of this kind, **six** found positive effects. **Five** found no visible effect, and **none** found negative effects.

## Civic Values and Practices from All Empirical Studies

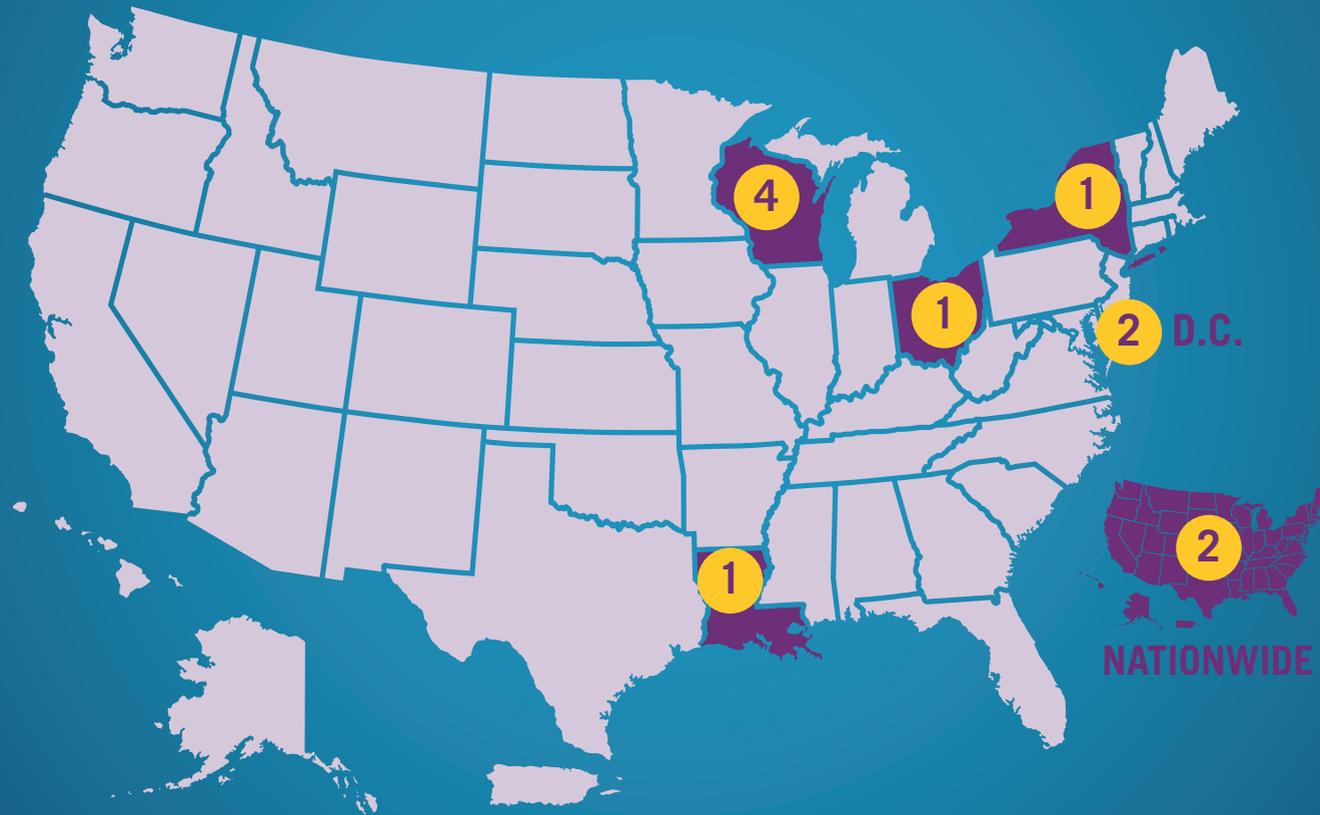
Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
DeAngelis and Wolf (2020)	Milwaukee, WI	V	✓		
DeAngelis and Wolf (2018)	Milwaukee, WI	V		○	
Mills et al. (2016)	Louisiana	V		○	
Fleming, Mitchell, and McNally (2014)	Milwaukee, WI	V	✓		
Fleming (2014)	Milwaukee, WI	V	✓		
Carlson, Chingos, and Campbell (2017)	New York, NY	P		○	
Bettinger and Slonim (2006)	Toledo, OH	P	✓		
Howell and Peterson (2006)	Washington, D.C.	P		○	
Campbell (2002)	National	P	✓		
Peterson and Campbell (2001)	Nationwide	P		○	
Wolf, Peterson, and West (2001)	Washington, D.C.	P	✓		

V=Voucher

P=Private scholarship

*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 Civic Values and Practices by Location



---

# RACIAL / ETHNIC INTEGRATION

---

These studies examine the effect of school choice programs on **racial and ethnic diversity** in schools.

Of the **seven studies** that have examined school choice's effect on integration in schools, **six** found positive effects. **One** was unable to detect any effects, and **none** found negative effects.

## Racial/Ethnic Integration from All Empirical Studies

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

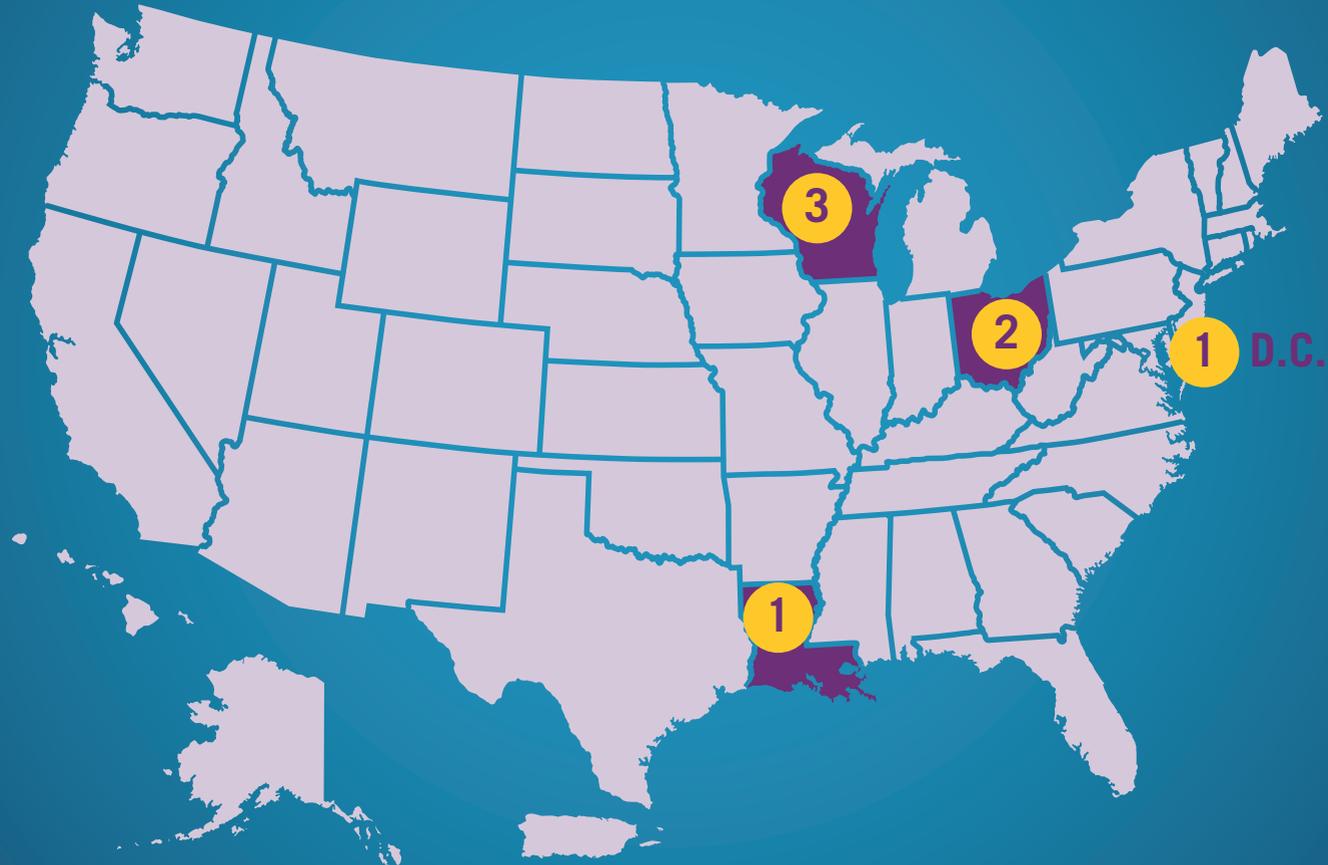
V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

*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."

# Number of Studies on Racial/Ethnic Integration by Location



---

# FISCAL EFFECTS

---

These studies examine whether school choice programs **generate net savings, net costs** or are **cost-neutral** for taxpayers.

Of the **70 studies** on the fiscal effects of private school choice programs, **65** found programs generated savings for taxpayers.

**Four** found those programs were cost-neutral. **Five studies** has found a private school choice program generated net costs.

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

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Lueken (2021)	Arizona	ESA	✓		X
Lueken (2021)	Florida	ESA	✓		
Lueken (2021)	Mississippi	ESA	✓		
PEER Mississippi# (2021)	Mississippi	ESA			X
Lueken (2021)	Washington, D.C.	V	✓		
Lueken (2021)	Florida	V	✓		
Lueken (2021)	Georgia	V	✓		
Lueken (2021)	Indiana	V	✓		
Lueken (2021)	Louisiana	V	✓		
Lueken (2021)	Louisiana	V	✓		
Lueken (2021)	Mississippi	V	✓		
Lueken (2021)	North Carolina	V	✓		
Lueken (2021)	North Carolina	V	✓		
Lueken (2021)	Cleveland, OH	V	✓		
Lueken (2021)	Ohio	V	✓		
Lueken (2021)	Ohio	V	✓		
Lueken (2021)	Ohio	V	✓		
Lueken (2021)	Ohio	V	✓		

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

*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 (2021) employs the same methods as: 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>

# Joint Legislative Committee on Performance Evaluation and Expenditure Review

*Continues on next slide.*

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

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Lueken (2021)	Oklahoma	V	✓		
Lueken (2021)	Utah	V	✓		
Lueken (2021)	Milwaukee, WI	V	✓		
Lueken (2021)	Racine, WI	V	✓		
Lueken (2021)	Wisconsin	V	✓		X
Trivitt and DeAngelis (2020)	Louisiana	V	✓		
Trivitt and DeAngelis (2018)	Arkansas	V	✓		
Wisconsin LAB* (2018)	Wisconsin	V		○	
DeAngelis and Trivitt (2016)	Louisiana	V	✓		
Spalding (2014)	Florida	V	✓		
Wolf and McShane (2013)	Washington, D.C.	V	✓		
Costrell (2010)	Milwaukee, WI	V	✓		
Aud (2007)	Vermont	V		○	
Aud (2007)	Maine	V		○	
Aud (2007)	Florida	V	✓		
Aud (2007)	Florida	V	✓		
Aud (2007)	Washington, D.C.	V	✓		
Aud (2007)	Cleveland, OH	V	✓		

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

*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 (2021) employs the same methods as: 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>

\*State of Wisconsin Legislative Audit Bureau

*Continues on next slide.*

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

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Aud (2007)	Ohio	V	✓		
Aud (2007)	Utah	V		○	
Aud (2007)	Milwaukee, WI	V	✓		
Aud and Michos (2006)	Washington, D.C.	V	✓		
Lueken (2021)	Alabama	TCS	✓		X
Lueken (2021)	Arizona	TCS	✓		
Lueken (2021)	Arizona	TCS	✓		
Lueken (2021)	Arizona	TCS	✓		
Lueken (2021)	Arizona	TCS	✓		
Lueken (2021)	Florida	TCS	✓		
Lueken (2021)	Georgia	TCS	✓		
Lueken (2021)	Indiana	TCS	✓		
Lueken (2021)	Iowa	TCS	✓		
Lueken (2021)	Kansas	TCS	✓		X
Lueken (2021)	Louisiana	TCS	✓		
Lueken (2021)	New Hampshire	TCS	✓		
Lueken (2021)	Oklahoma	TCS	✓		
Lueken (2021)	Pennsylvania	TCS	✓		

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

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 (2021) employs the same methods as: 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>

Continues on next slide.

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

Study	Location	Program Type	Any Positive Effect	No Visible Effect	Any Negative Effect
Lueken (2021)	Pennsylvania	TCS	✓		
Lueken (2021)	Rhode Island	TCS	✓		
Lueken (2021)	South Carolina	TCS	✓		
Lueken (2021)	Virginia	TCS	✓		
Erickson and Scafidi (2020)	Georgia	TCS	✓		
Sheasby** (2020)	Arizona	TCS	✓		
Dearmon and Evans (2018)	Oklahoma	TCS	✓		
Girardi and Gullickson (2017)	Iowa	TCS	✓		
SummaSource (2017)	Alabama	TCS	✓		
LOEDR‡ (2012)	Florida	TCS	✓		
OPPAGA§ (2008)	Florida	TCS	✓		
Aud (2007)	Arizona	TCS	✓		
Aud (2007)	Pennsylvania	TCS	✓		
Aud (2007)	Florida	TCS	✓		
Collins Center for Public Policy (2007)	Florida	TCS	✓		
Merrifield & Gray (2009)	San Antonio, TX	P	✓		

V=Voucher

TCS=Tax-credit scholarship

P=Private scholarship

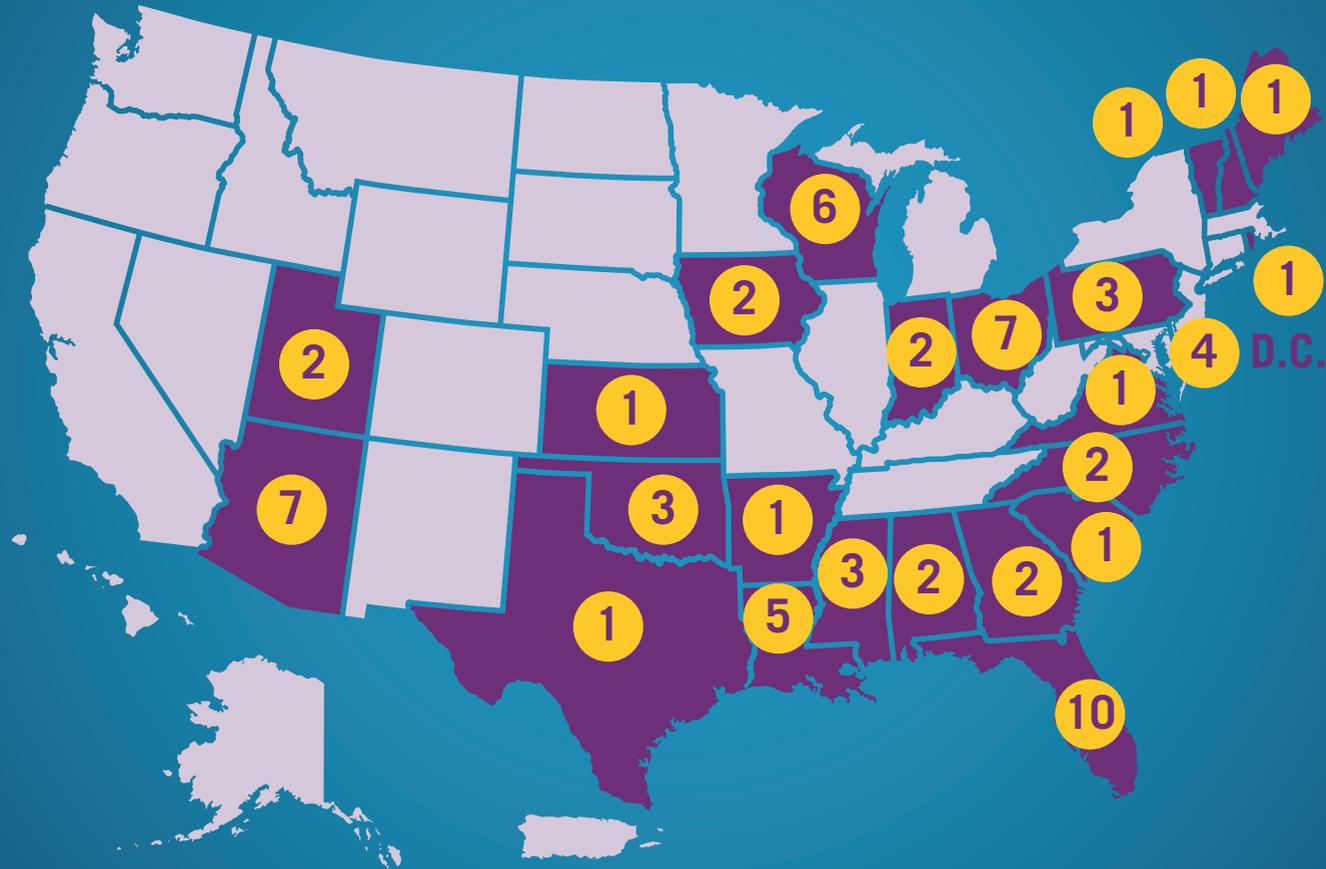
*Notes:* This table shows all empirical studies using all methods; the total fiscal effect of school choice programs is referenced. Table excludes any analyses that fail to make a reasonable attempt to account for both sides of the ledger, i.e. both costs and savings from school choice programs. If a 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 (2021) employs the same methods as: 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>

\*\* 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)

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



## How We Searched for Studies

EdChoice regularly monitors research on private school choice. We most recently conducted a systematic search from January 2020 through January 2021. We searched several databases including EconLit, ERIC, JSTOR, ProQuest, PsychINFO, and Google Scholar. We also searched individual publications and working paper series such as Education Next, National Bureau of Economic Research, Annenberg (Brown University), and Journal of School Choice. Ten different search terms were used, including “school choice,” “school voucher,” “tax credit scholarships,” “tuition tax credits,” “education savings accounts,” and “ESA.”

We also enlisted Hanover Research to conduct an additional search using similar search methods. The search period was 1995 to 2017. EdChoice then analyzed the results and papers to see whether the hundreds of results met our inclusion criteria. Since then, Hanover and EdChoice have also conducted searches on a periodic basis. Results from these processes are reflected in the present slide deck.

# How We **Included** and **Counted** Studies

- We based our inclusion and counting criteria on methods used in EdChoice's *123s of School Choice: What the Research Says About Private School Choice Programs in America (2020 Ed.)* report.
- A “study” is defined as an analysis of a school choice program. 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.
- 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 are classified as “no visible effect.”

## How We **Included** and **Counted** Studies

- In a statistical sense, "no visible effect" means that data were insufficient to detect any effect (if there was an effect); it does not necessarily mean that there were no differences in outcomes between the comparison groups.
- In light of the limited body of research on many outcomes that have been studied, we report results for studies based on both random assignment (whenever possible) and acceptable nonexperimental methods until 10 random assignment studies based on unique student populations become available.
- Recent studies of the Louisiana Scholarship Program have included science and social studies test scores as outcomes included in those analyses. All other studies with test scores as measured outcomes have analyzed only math and reading outcomes. With the exception of one statistically significant negative point estimate (out of many point estimates), there have been no visible effects on social studies and science outcomes.

# Caveat

While these counting methods allow us to present information easily, **they can mask other important factors**, such as how big an effect is or how much of an effect is due to a certain program design.

## Research Studies on ESA Programs

Author(s)	Program Name	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>						
Catt and Cheng	Empowerment Scholarship Accounts	Arizona	2019	✓		X
Kittredge	Equal Opportunity for Students with Special Needs Program	Mississippi	2016	✓		
Butcher and Bedrick	Empowerment Scholarship Accounts	Arizona	2013	✓		
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>						
Lueken	Empowerment Scholarship Accounts	Arizona	2021	✓		X
Lueken	Gardiner Scholarships	Florida	2021	✓		
Lueken	Equal Opportunity for Students with Special Needs Program	Mississippi	2021	✓		
PEER Mississippi #	Equal Opportunity for Students with Special Needs Program	Mississippi	2018			X

\*Joint Legislative Committee on Performance Evaluation and Expenditure Review

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	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>						
Webber et al.	Opportunity Scholarship Program	Washington, D.C.	2019		○	
Mills and Wolf	Louisiana Scholarship Program	Louisiana	2019			×
Abdulkadiroglu, Pathak, and Walters	Louisiana Scholarship Program	Louisiana	2018			×
Wolf et al.	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
Lamarche	Milwaukee Parental Choice Program	Milwaukee, WI	2008	✓		×
Greene, Peterson, and Du	Milwaukee Parental Choice Program	Milwaukee, WI	1999	✓		
Rouse	Milwaukee Parental Choice Program	Milwaukee, WI	1998	✓		
<b>Attainment Outcomes of Participants from All Empirical Studies</b>						
Austin and Pardo	Choice Scholarship Program	Indiana	2021	✓		
Chingos et al.	Opportunity Scholarship Program	Washington, D.C.	2019		○	
Chingos et al.	Milwaukee Parental Choice Program	Milwaukee, WI	2019	✓		
Erickson, Mills, and Wolf	Louisiana Scholarship Program	Louisiana	2019		○	
Wolf et al.	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>						
Department of Public Instruction	Special Needs Scholarship Program	Wisconsin	2018	✓		
Catt and Rhinesmith	Choice Scholarship Program	Indiana	2017	✓		
Egalite, Gray, and Stallings	Opportunity Scholarships	North Carolina	2017	✓		
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2016	✓		
Black	John M. McKay Scholarships for Students with Disabilities Program	Florida	2015		○	
Kisida and Wolf	Opportunity Scholarship Program	Washington, D.C.	2015	✓		
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2014	✓		
Witte et al.	Milwaukee Parental Choice Program	Milwaukee, WI	2008	✓		
Weidner and Herrington	John M. McKay Scholarships for Students with Disabilities Program	Florida	2006	✓		
Greene and Forster	John M. McKay Scholarships for Students with Disabilities Program	Florida	2003	✓		
Witte	Milwaukee Parental Choice Program	Milwaukee, WI	2000	✓		
Metcalfe	Cleveland Scholarship Program	Cleveland, OH	1999	✓		
Peterson, Howell, and Greene	Cleveland Scholarship Program	Milwaukee, WI	1999	✓		
Greene, Howell, and Peterson	Cleveland Scholarship Program	Cleveland, OH	1998	✓		

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

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

# Research Studies on Voucher Programs

Author(s)	Program Name	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Academic Outcomes of Public Schools from All Empirical Studies</b>						
Egalite and Mills (2021)	Louisiana Scholarship Program	Louisiana	2021	✓		
Egalite and Catt (2020)	Choice Scholarship Program	Indiana	2020	✓		
Figlio and Karbownik (2016)	Educational Choice Scholarship Program	Ohio	2016	✓		
Bowen and Trivitt (2014)	Opportunity Scholarship Program‡	Florida	2014			X
Chakrabarti	Opportunity Scholarship Program‡	Florida	2013	✓		
Carr	Educational Choice Scholarship Program	Ohio	2011	✓		
Winters and Greene	John M. McKay Scholarships for Students with Disabilities Program	Florida	2011	✓		
Mader	Milwaukee Parental Choice Program	Milwaukee, WI	2010	✓		
Greene and Marsh	Milwaukee Parental Choice Program	Milwaukee, WI	2009	✓		
Chakrabarti	Milwaukee Parental Choice Program	Milwaukee, WI	2008	✓		
Forster	Educational Choice Scholarship Program	Ohio	2008	✓		
Forster	Opportunity Scholarship Program‡	Florida	2008	✓		
Carnoy et al.	Milwaukee Parental Choice Program	Milwaukee, WI	2007	✓		
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	2007		○	
Figlio and Rouse	Opportunity Scholarship Program‡	Florida	2006	✓		
West and Peterson	Opportunity Scholarship Program‡	Florida	2006	✓		
Greene and Winters	Opportunity Scholarship Program‡	Florida	2004	✓		
Greene and Forster	Milwaukee Parental Choice Program	Milwaukee, WI	2002	✓		
Hammons	Town Tuitioning Program	Maine	2002	✓		
Hammons	Town Tuitioning Program	Vermont	2002	✓		
Hoxby	Milwaukee Parental Choice Program	Milwaukee, WI	2002	✓		
Greene	Opportunity Scholarship Program‡	Florida	2001	✓		
<b>Civic Values and Practices from All Empirical Studies</b>						
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	2020	✓		
DeAngelis and Wolf	Milwaukee Parental Choice Program	Milwaukee, WI	2018		○	
Mills et al.	Louisiana Scholarship Program	Louisiana	2016		○	
Fleming, Mitchell, and McNally	Milwaukee Parental Choice Program	Milwaukee, WI	2014	✓		
Fleming	Milwaukee Parental Choice Program	Milwaukee, WI	2014	✓		

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

Author(s)	Program Name	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Racial Integration from All Empirical Studies</b>						
Egalite, Mills, and Wolf	Louisiana Scholarship Program	Louisiana	2017	✓		
Greene, Mills, and Buck§	Milwaukee Parental Choice Program	Milwaukee, WI	2010		○	
Greene and Winters	Opportunity Scholarship Program	Washington, D.C.	2007	✓		
Forster	Milwaukee Parental Choice Program	Milwaukee, WI	2006	✓		
Forster	Cleveland Scholarship Program	Cleveland, OH	2006	✓		
Fuller and Mitchell	Milwaukee Parental Choice Program	Milwaukee, WI	2000	✓		
Greene	Cleveland Scholarship Program	Cleveland, OH	1999	✓		
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>						
Lueken	Opportunity Scholarship Program	Washington, D.C.	2021	✓		
Lueken	John M. McKay Scholarships for Students with Disabilities Program	Florida	2021	✓		
Lueken	Georgia Special Needs Scholarship Program	Georgia	2021	✓		
Lueken	Choice Scholarship Program	Indiana	2021	✓		
Lueken	Louisiana Scholarship Program	Louisiana	2021	✓		
Lueken	School Choice Program for Certain Students with Exceptionalities	Louisiana	2021	✓		
Lueken	Mississippi Dyslexia Therapy Scholarship for Students with Dyslexia Program	Mississippi	2021	✓		
Lueken	Special Education Scholarship Grants for Children with Disabilities	North Carolina	2021	✓		
Lueken	Opportunity Scholarships	North Carolina	2021	✓		
Lueken	Cleveland Scholarship Program	Cleveland, OH	2021	✓		
Lueken	Autism Scholarship Program	Ohio	2021	✓		
Lueken	Educational Choice Scholarship Program	Ohio	2021	✓		
Lueken	Jon Peterson Special Needs Scholarship Program	Ohio	2021	✓		
Lueken	Income-Based Scholarship Program	Ohio	2021	✓		
Lueken	Lindsey Nicole Henry Scholarships for Students with Disabilities	Oklahoma	2021	✓		
Lueken	Carson Smith Special Needs Scholarship Program	Utah	2021	✓		
Lueken	Milwaukee Parental Choice Program	Milwaukee, WI	2021	✓		
Lueken	Parental Private School Choice Program (Racine)	Racine, WI	2021	✓		
Lueken	Parental Choice Program (Statewide)	Wisconsin	2021			X

§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.

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	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b> <i>(continued)</i>						
Trivitt and DeAngelis	Louisiana Scholarship Program	Louisiana	2020	✓		
Wisconsin LAB#	Succeed Scholarship Program	Arkansas	2018	✓		
DeAngelis and Trivitt	Special Needs Scholarship Program	Wisconsin	2018		○	
Trivitt and DeAngelis	Louisiana Scholarship Program	Louisiana	2016	✓		
Spalding	Opportunity Scholarship Program‡	Florida	2014	✓		
Wolf and McShane	Opportunity Scholarship Program	Washington, D.C.	2013	✓		
Costrell	Milwaukee Parental Choice Program	Milwaukee, WI	2010	✓		
Aud	Town Tuitioning Program	Vermont	2007		○	
Aud	Town Tuitioning Program	Maine	2007		○	
Aud	John M. McKay Scholarships for Students with Disabilities Program	Florida	2007	✓		
Aud	Opportunity Scholarship Program†	Florida	2007	✓		
Aud	Opportunity Scholarship Program	Washington, D.C.	2007	✓		
Aud	Cleveland Scholarship Program	Cleveland, OH	2007	✓		
Aud	Autism Scholarship Program	Ohio	2007	✓		
Aud	Carson Smith Special Needs Scholarship Program	Utah	2007		○	
Aud	Milwaukee Parental Choice Program	Milwaukee, WI	2007	✓		
Aud and Michos	Opportunity Scholarship Program	Washington, D.C.	2006	✓		

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

#State of Wisconsin Legislative Audit Bureau

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	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Civic Values and Practices from All Empirical Studies</b>						
Chingos et al.	Florida Tax Credit Scholarship Program	Florida	2019	✓		
<b>Parent Satisfaction Impacts from Private Educational Choice Programs</b>						
Catt and Cheng	All four tax-credit scholarship programs*	Arizona	2019			X
Catt and Rhinesmith	School Scholarship Tax Credit	Indiana	2017	✓		
Department of Revenue Administration	Education Tax Credit Program	New Hampshire	2017	✓		
Catt and Rhinesmith*	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2016	✓		
DiPerna†	Choice Scholarship Program/School Scholarship Tax Credit	Indiana	2015	✓		
Kelly and Scafidi	Qualified Education Expense Tax Credit	Georgia	2013	✓		
<b>Academic Outcomes of Public Schools from All Empirical Studies</b>						
Figlio et al.	Florida Tax Credit Scholarship Program	Florida	2020	✓		
Figlio and Hart	Florida Tax Credit Scholarship Program	Florida	2014	✓		
Rouse et al.	Florida Tax Credit Scholarship Program	Florida	2013	✓		
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies</b>						
Lueken	Alabama Education Scholarship Program	Alabama	2021	✓		X
Lueken	Original Individual Income Tax Credit Scholarship Program	Arizona	2021	✓		
Lueken	Low-Income Corporate Income Tax Credit Scholarship Program	Arizona	2021	✓		
Lueken	Lexie's Law for Disabled and Displaced Students Tax Credit Scholarship Program	Arizona	2021	✓		
Lueken	"Switcher" Individual Income Tax Credit Scholarship Program	Arizona	2021	✓		
Lueken	Florida Tax Credit Scholarship Program	Florida	2021	✓		
Lueken	Qualified Education Expense Tax Credit	Georgia	2021	✓		
Lueken	School Scholarship Tax Credit	Indiana	2021	✓		

\*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.

§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 Tax-Credit Scholarship Programs

Author(s)	Program Name	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Fiscal Effects on Taxpayers and Public Schools from All Empirical Studies (cont.)</b>						
Lueken	School Tuition Organization Tax Credit	Iowa	2021	✓		X
Lueken	Tax Credit for Low Income Students Scholarship Program	Kansas	2021	✓		
Lueken	Tuition Donation Rebate Program	Louisiana	2021	✓		
Lueken	Education Tax Credit Program	New Hampshire	2021	✓		
Lueken	Oklahoma Equal Opportunity Education Scholarships	Oklahoma	2021	✓		
Lueken	Educational Improvement Tax Credit Program	Pennsylvania	2021	✓		
Lueken (	Opportunity Scholarship Tax Credit Program	Pennsylvania	2021	✓		
Lueken	Tax Credits for Contributions to Scholarship Organizations	Rhode Island	2021	✓		
Lueken	Educational Credit for Exceptional Needs Children	South Carolina	2021	✓		
Lueken	Education Improvement Scholarships Tax Credits Program	Virginia	2021	✓		
Erickson and Scafidi	Qualified Education Expense Tax Credit	Georgia	2020	✓		
Sheasby	All four tax-credit scholarship programs**	Arizona	2020	✓		X
Dearmon and Evans	Oklahoma Equal Opportunity Education Scholarships	Oklahoma	2018	✓		
Girardi and Gullickson	School Tuition Organization Tax Credit	Iowa	2017	✓		
SummaSource	Alabama Education Scholarship Program	Alabama	2017	✓		
LOEDR ‡	Florida Tax Credit Scholarship Program	Florida	2012	✓		
OPPAGA )§	Florida Tax Credit Scholarship Program	Florida	2008	✓		
Aud	Original Individual Income Tax Credit Scholarship Program	Arizona	2007	✓		
Aud	Educational Improvement Tax Credit Program	Pennsylvania	2007	✓		
Aud	Florida Tax Credit Scholarship Program	Florida	2007	✓		
Collins Center for Public Policy	Florida Tax Credit Scholarship Program	Florida	2007	✓		

\*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.

§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(s)	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>Test Score Outcome of Participants from Random Assignment Studies</b>					
Cheng, Chingos, and Peterson*	New York, NY	2019	✓	○	
<b>Test Score Outcome of Participants from Random Assignment Studies</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	✓		

\*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."

## Research Studies on Privately Funded Programs

Author(s)	Location	Year	Any Positive Effect	No Visible Effect	Any Negative Effect
<b>Test Score Outcome of Participants from Random Assignment Studies (cont.)</b>					
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."

**Sign up for our email notifications** and  
browse our research library at

**[WWW.EDCHOICE.ORG/123s](http://WWW.EDCHOICE.ORG/123s)**

For more on these slides, email  
**[research@edchoice.org](mailto:research@edchoice.org)**