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THE FISCAL IMPACT OF K–12 EDUCATIONAL CHOICE

Using Random Assignment Studies of Private School Choice Programs to Infer Student Switcher Rates

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Executive Summary

Critics of private school choice programs argue that they drain resources from public schools and increase taxpayer costs,[i] Supporters of these programs, on the other hand, argue that these programs save taxpayers money because the average amount of scholarships is less than per pupil spending in public schools. Given these fiscal concerns, when legislators introduce a private school choice bill in a state, policymakers want to know about the potential fiscal effects of these programs on their state and local public schools' budgets.

The rate of students receiving scholarships who switch from attending public schools to private schools (i.e., "switchers") is an integral factor for reliably estimating the net fiscal impact of private school choice programs. Switchers lower the taxpayer cost of funding public schools and therefore represent an offset to the cost of funding choice programs. If choice programs serve a high rate of students who would have been enrolled in a public school if the choice programs did not exist (a high rate of switchers), then any fiscal savings will be larger when compared to choice programs with low switcher rates.

Analysts, however, do not observe the counterfactual, i.e., what sector school students would be enrolled (public or private) if the choice program did not exist. Some argue that without data identifying which type of school a choice program participant attended prior to receiving a scholarship, "the process of calculating switchers is unverifiable and opaque,"[ii]Even with good data collection by states, scholarship organizations, or program administrative organizations, estimating switcher rates pose a challenge for analysts. Estimates based on observational data on where students in choice programs were enrolled prior to participating in the program can yield biased estimates of the true switcher rate.

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[i] 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

[ii] Luis A. Huerta and Steven Koutsavlis (2017), *NEPC Review: The Tax-Credit Scholarship Audit: Do Publicly Funded Private School Choice Programs Save Money?* Retrieved from National Education Policy Center website: https://nepc.colorado.edu/sites/default/files/reviews/TTR%20Huerta%20Tax%20Credits_2.pdf

Fortunately, there is a body of evidence that can provide unbiased estimates for switcher rates. Some researchers have observed the counterfactual for programs that were oversubscribed and conducted random assignment lotteries. The switcher rates observed in these studies are remarkably stable across time and states and can provide useful information for inferring switcher rates when conducting fiscal analyses.

This paper identifies 27 distinct estimates of switcher rates from nine lottery-based studies of six private school choice programs in the United States that report information about which types of schools students enroll in after they apply to a choice program and do not win a lottery (the control group). That is, students whose families apply for a scholarship, but are randomly denied, are observed attending either a public or private school. The proportion of students attending a public school after losing a scholarship lottery provide a good estimate of the switcher rate as their families desired participation in a choice program.

Switcher rates in these lottery-based school choice programs, for both full samples and subgroups of students, ranged from 79 percent to 98 percent. The weighted average and median switcher rates from these studies are 91 percent and 90 percent, respectively.

Switcher rates are slightly higher for African American students participating in three privately funded school choice programs (New York City, Dayton, and Washington, D.C.), where the average switcher rate for these students is 93 percent and the media is 94 percent.

When examining switcher rates by year after students applying to the program, mean and median switcher rates observed among students in the control groups overall is about 90 percent each year.

These findings align well with assumptions about switcher rates employed in some fiscal analyses of private school choice programs. However, assumed switcher rates used in other analyses are well below the range of switcher rates observed in the body of random assignment studies, suggesting that these latter estimates of net fiscal effects are significantly understated. For example, Lueken estimated the fiscal effects of 10 tax-credit scholarship programs using 60

percent and 90 percent switcher rates.[iii] The estimated net fiscal impact per scholarship ranged from $1,650 (60 percent switcher rate) to $3,000 (90 percent switcher rate), suggesting that the low-end estimates are significantly understated.

[iii] 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

Introduction

Critics of private school choice programs argue that they drain resources from public schools and increase taxpayer costs (Lueken, 2018a). Supporters of these programs, on the other hand, argue that these programs save taxpayers money because the average amount of scholarships is less than per pupil spending in public schools. Given this fiscal question, when legislators introduce a private school choice bill in a state, policymakers want to know about the potential fiscal effects of these programs on their state and local public schools' budgets.[1]

There is a direct fiscal cost from private school choice programs because they fund education savings accounts and vouchers, and tax credits reduce the amount of revenue for the state. Choice programs, however, also yield a direct fiscal savings from not having to pay the cost of enrolling students in public schools.[2] Thus, any net fiscal impact of a choice program is determined by the cost to fund these programs relative to the savings.

Net Fiscal Impact = Expenditures Avoided – Program Costs

"Switchers" represent a central determinant of the fiscal effects of these programs, where switchers are students who would be enrolled in a public school without the financial assistance from the choice program. When students switch from public schools to private schools via choice programs, costs are reduced for both the state and public schools. Non-switchers are students who would have enrolled in a non-public school environment even without the program in place and represent a pure cost for a program. Switchers represent savings that offset all or part of the costs of a choice program.

[1] For example, one media outlet reported that different analyses for a tax-credit scholarship bill in Kentucky, one conducted by the Legislative Research Commission and state's budget director were presented during testimony for the House Appropriations and Revenue Committee.
"Private school tax bill: Here's what legislators, Bevin are saying," by Mandy McIaren, *Louisville Courier Journal*, March 5, 2019, https://www.courier-journal.com/story/news/politics/ky-legislature/2019/03/05/hb-205-kentucky-what-legislators-say-private-school-tax/3064086002/

[2] The term "public school," as used throughout the present paper, refers to both traditional (district) public schools and public charter schools.

Estimates of the net fiscal effects of private school choice programs are very sensitive to assumptions about switchers. Thus, the switcher rate is a crucial factor for any fiscal analysis of a choice program. Accounting for switchers, however, presents a challenge for fiscal analyses because analysts do not observe where scholarship students would have attended school—if they were not using scholarships.

Some argue that without data identifying which type of school a choice program participant attended prior to receiving a scholarship, "the process of calculating switchers is unverifiable and opaque" (Huerta & Koutsavlis, 2017). Even with good data collection by states or scholarship organizations, however, estimating switcher rates pose a challenge for analysts. Estimates based on observational data on where students in choice programs were enrolled prior to participating in the program can yield biased estimates of the true switcher rate. Fortunately, there is a body of evidence that can provide unbiased estimates for switcher rates.

In the absence of data on switcher rates, one of the most reliable sources of information for informing this area comes from random assignment studies (Costrell, 2008), where students whose families apply for a choice program that is oversubscribed are entered into a lottery. Some researchers have observed the counterfactual for programs that were oversubscribed and conducted random assignment lotteries. The offer of a scholarship is determined by random assignment where some students are randomly assigned a scholarship to a private school while others are randomly denied a scholarship offer. The switcher rates observed in these studies are remarkably stable across time and states and can provide useful information for inferring switcher rates when conducting fiscal analyses.

Generally speaking, random assignment offers the best research methods for answering questions about the causal effects of education programs and policies (Cook & Payne, 2002). Random assignment of scholarships also provides the best method for addressing a key question about the counterfactual for any fiscal analysis: what share of students participating in a given choice program would have enrolled in a public school without the program in place? Specifically, evidence to address this question can be obtained from random assignment studies by observing where students in the control group (the lottery losers) enrolled after not receiving an offer to

participate in the program. The percent of students who lost the lottery and then enrolled in a public school in subsequent years is a reliable measure of what percent of those students would have been switchers—students who switched from a public to a private school after receiving a scholarship. This paper summarizes this valuable information on switching rates gathered from random assignment research on private school choice programs.

The remainder of this paper is organized as follows: the next section discusses challenges with obtaining information about switchers when doing a fiscal analysis of a proposed choice program. Next, it reviews prior fiscal analyses and discusses their assumptions about switching. Then the paper summarizes data from random assignment studies that can help inform questions about switching. The paper finishes with a discussion of these findings and concluding remarks.

Difficulty in Identifying Switcher Rates

Estimating the true switcher rate of a choice program poses a challenge for analysts because they typically do not observe the counterfactual. That is, analysts normally do not observe where scholarship recipients would be enrolled if a choice program did not exist.

Collecting even useful data does not ameliorate this problem of not observing the counterfactual. There is considerable variation in the extent to which private school choice program administrative organizations such as government agencies or tax-credit scholarship organizations publicly report data that can help analysts infer switching rates. Some agencies report information about the type of schooling environment students were enrolled prior to participating in a program. For example, the Alabama Department of Revenue reports this information annually for the state's tax-credit scholarship program.[3] Most tax-credit scholarship programs do not track or publicly report such information.

[3] For each year of the program, the Alabama Department of Revenue reports the total number and percentage "of first time recipients continuously enrolled in a public school for the entire previous year." Alabama Department of Revenue, Alabama Accountability Act, retrieved 5/22/2019 from: https://revenue.alabama.gov/legal/alabama-accountability-act/

Some fiscal analyses of school choice programs use the types of schools where students were enrolled prior to participating in a choice program as a proxy for switching. If a student was enrolled in a public school setting prior to participating in a choice program, then he or she would be counted as a switcher. One issue with this approach is that some students are entering school for the first time and do not actually have the opportunity to "switch" from a public school. This could be the case with kindergarten or first grade students. Without any adjustments applied to this group of students, all students entering school for the first time would by default be counted as non-switchers—even when most or even all of them would have been enrolled in a public school if the choice program did not exist. Estimates from random assignment studies provide a significant improvement over these approaches because they yield unbiased estimates of the counterfactual.

Generally, it is impossible to know with certainty if a student is a switcher at any given point in time—even with excellent data collection efforts. For example, if we observe a student in a nonpublic school before receiving a scholarship, it could be the case that she would have entered a public school sometime in the future (e.g., beginning of high school) without the financial assistance from the program. In this case, he or she would generate savings from the point she switches from public school. It is also possible to observe a student in public school before receiving a scholarship who would have enrolled in a private school sometime in the future even without financial assistance from a scholarship. Such a student in a private school choice program would generate costs from the point she leaves public school. These examples are indicative of the complexity and limitations associated with precisely estimating the fiscal impact of school choice programs. Given such challenges, fiscal analyses have employed various of approaches to estimating switcher rates.

Fiscal Analyses of Private School Choice Programs

This section discusses methods and assumptions about switcher rates used in fiscal analyses of private school choice programs. A large body of research has examined the fiscal effects of these programs. Some fiscal analyses cite evidence from random assignment research to infer switcher

rates. Other work estimates break-even switcher rates for private school choice programs. These are switcher rates under which a program is revenue neutral, i.e. the rate that equalizes a program's costs with benefits.

School Voucher Programs

Lueken (2018a) estimated the fiscal effects of 16 school voucher programs in 10 states. When possible, he attempted to obtain data on prior enrollment from choice program administrative agencies to generate fiscal effects estimates. When such data was not available, he relied on findings from research on those programs. Estimates for break-even switcher rates range from 15 percent for Louisiana's School Choice Program for Certain Students with Exceptionalities to 80 percent for the Racine (Wisconsin) Parental Private School Choice Program. The average break-even switcher rate, weighted by participation, for programs studied in the analysis is 60 percent.

Trivitt and DeAngelis (2016) estimated the cost of eliminating the Louisiana Scholarship Program to the state.[4] They estimated that for the program's removal to be cost-neutral, between 13 percent and 25 percent of LSP students would need to remain in private schools, implying break-even switcher rates of 75 percent to 87 percent. They note that early random assignment studies of the LSP found that 9 percent of students in the control group remained in private schools even without program assistance, implying a switcher rate of around 91 percent. Given that requirements for students to remain in public schools are greater than 9 percent for removal of the LSP to be fiscally neutral for the state, eliminating the program would generate a net fiscal cost for the state.

Costrell (2010) uses evidence from random assignment studies to infer switcher rates in analyzing the fiscal effects of the Milwaukee Parental Choice Program on different groups of taxpayers.[5] While his main estimates are based on a 90 percent switcher rate assumption, he also produces estimates using a 70 percent switcher rate.

[4] The LSP was not actually eliminated and currently remains in operation.
[5] Costrell's estimate is based on evidence from random assignment studies of the DCOSP and privately funded voucher programs in New York City, Washington, D.C., and Dayton, OH.

Tax-Credit Scholarship Programs

Lueken (2018b) conducted a fiscal analysis of 10 tax-credit scholarship programs in seven states and used a very broad range of switcher rates, from 60 percent to 90 percent, to generate his estimates. The high-end rate was informed by Costrell (2010) while the low-end range was based on parental survey data about their stated preferences for their child's schooling.

An analysis conducted by another governmental agency, the Iowa Department of Revenue, estimated the fiscal impact of Iowa's School Tuition Organization Tax Credit Program (Girardi & Gullickson, 2017). The analysis generated estimates based on a 30 percent switcher rate and also estimated a break-even switcher rate of 15 percent.

In an analysis of Georgia's tax-credit scholarship program, Buschman & Sjoquist (2014) estimated a very wide range of break-even switcher rates under a range of different values for the state grant and amount of tax credits awarded per scholarship recipient. They report break-even switcher rate estimates ranging from 37 percent to 98 percent.[6]

Two reports by the Florida legislature's Office of Program Policy Analysis and Government Accountability estimated the fiscal impact of the Florida Tax Credit Scholarship Program on state taxpayers for FY 2008 and FY 2009 (OPPAGA, 2008; OPPAGA, 2010). The two analyses assumed that the switcher rate was 90 percent and 95 percent, respectively.

Lips and Jacoby (2001) estimated the fiscal impact of Arizona's Original Individual Tax Credit Program from 1998 to 2000. Based on interviews with SGOs and data about students from low-income families, they assumed a switcher rate of 20 percent.

[6] Buschman and Sjoquist engaged in an exchange with Benjamin Scafidi, who critiqued their methods. For a summary of this exchange, please see Lueken (2018b).

Summarizing Data on Switcher Rates from Random Assignment Research

The counterfactual of interest for a fiscal analysis of school choice programs, the sector school where students would enroll (public or private) if the choice program did not exist, cannot be observed. This poses a challenge for analysts. Estimates of switcher rates based on good data collection on where students were enrolled prior to participating in a choice program would likely be biased. And break-even switcher rates are very limited in that they can provide a very general sense about the cost or savings potential of a school choice program. Evidence from random assignment studies about where students enroll after applying to a choice program and being denied a scholarship offer can provide analysts with unbiased estimates of the counterfactual of interest.

I reviewed 22 studies that used random assignment to evaluate private school choice programs in the United States and identified 27 unique estimates of switcher rates from nine studies of six private school choice programs that observed switcher rates for students who lost random assignment lotteries. Specifically, these studies reported where students in the control group were enrolled after applying to a program and losing a lottery. These studies cover six programs in Louisiana; Washington, D.C.; Toledo, Ohio; New York City; and Dayton, Ohio. Some studies were part of longitudinal evaluations that conducted analyses on an annual basis and reported results each year. For these evaluations, I reviewed all papers and reports from these evaluations and sought data on switcher rates for each year studied.[7] Two longitudinal evaluations of the federally funded program in Washington, D.C. have been conducted, one of which is currently ongoing.

Taken together, these studies offer the best evidence available on switcher rates and should be used in fiscal analyses of choice programs. This evidence is ideal because these are the only studies that actually observe the counterfactual—where students who wanted to exercise choice

[7] I report switcher rates from the most recent publication. For example, if switcher rates observed in the second year of a program were reported in a year two report and a final report, and if they differ, then I report estimates from the final report. Any observed differences from different reports of the same program were very small.

would have been enrolled if the choice program were not available to them (because they lost a random lottery). Table 1 summarizes the findings on switcher rates from these random assignment studies.

Overall, switcher rates in these programs range from 79 percent to 98 percent. The average switcher rate, weighted by the number of students in the control group, is 91 percent. The median switcher rate is 90 percent.

Mills and Wolf (2019) conducted an evaluation of the effects of the Louisiana Scholarship Program (LSP) on student math and reading test scores. For each of the four years studied in the evaluation, they report the number of students in the control group that attended public and private schools. During the study period, between 84 percent and 92 percent of students who did not receive a voucher offer enrolled in a public school. Another team of researchers studied the effects of the LSP program on student test scores during the program's first year (Abdulkadiroglu, Pathak, and Walters, 2018). Of the students not offered a voucher, 14 percent attended a public charter school and 77 percent attended a public non-charter school. Just five percent of students in the control group enrolled in a private school, and four percent attended a school of an unknown type. After adjusting for students who attended schools of an unknown type, the estimated switcher rate is 95 percent.

In 2011, the United States Congress re-authorized the Washington, D.C. Opportunity Scholarship Program (DCOSP). Over the program's existence, two longitudinal evaluations have been conducted, one completed prior to 2011 and one that started evaluating the program post-2011 and currently ongoing.

A team of researchers conducted the first longitudinal evaluation of the DCOSP and evaluated the experiences of students from the 2004 and 2005 cohorts. They reported where students in the control group were enrolled during each of the four years of the program. By the end of the first year, 60 percent were attending traditional public schools, 27 percent were attending public charter schools, and 13 percent were enrolled in private schools (Wolf et al., 2008). By the fourth year of the program, 89 percent of students were in public schools (Wolf et al., 2013).

Table 1: Summary of Findings About Switchers from Random Assignment Studies

Study	Location (evaluation)	Type of program	What analysis says about switchers	Switcher rate
Mills & Wolf (2019)	Louisiana (4-year longitudinal evaluation, completed)	V	In Year 4 of the program, 89 percent of students who did not receive LSP to their first choice school enrolled in a public school.	89 percent
			In Year 3 of the program, 87 percent of students who did not receive LSP to their first choice school enrolled in a public school.	87 percent
			In Year 2 of the program, 84 percent of students who did not receive LSP to their first choice school enrolled in a public school.	84 percent
			In Year 1 of the program, 92 percent of students who did not receive LSP to their first choice school enrolled in a public school.	92 percent
Abdulkadiroglu, Pathak, & Walters (2018)	Louisiana	V	Of applicants not offered a voucher, 14 percent attended a public charter school, 77 percent attended a non-charter public school, 5 percent attended a voucher school, and 4 percent attended a school of unknown type.	95 percent
Webber et al. (2019)	Washington, D.C. (Longitudinal evaluation of DCOSP after 2011 reauthorization, ongoing)	V	Of students not offered a voucher, 89 percent were enrolled in traditional public or public charter schools three years after applying to the program.	89 percent
Dynarski et al. (2018)			Of students not offered a voucher, 90 percent were enrolled in traditional public or public charter schools two years after applying to the program; Of students in the control group, 9 percent either enrolled in a private school or changed between public and private schools during the first two years in the program.	90 percent
Dynarski et al. (2017)			Of students in the control group, 10 percent were enrolled in a participating private school while 90 percent were enrolled in traditional public or public charter schools one year after applying to the program.	90 percent
Wolf et al. (2013)	Washington, D.C. (First longitudinal evaluation of DCOSP, completed)	V	Of students assigned to the control group in 2004 or 2005, 53 percent were attending traditional public schools in 2009, 35 percent were attending public charter schools in 2009, and 11 percent were enrolled in private schools in 2009 after their fourth year in the program.	89 percent
Wolf et al. (2009)			During the third year of the program, of students assigned to the control group in 2004 or 2005, 54 percent were attending traditional public schools, 34 percent were attending public charter schools, and 12 percent were enrolled in private schools after their third year in the program.	88 percent

Wolf et al. (2008)			Of students assigned to the control group in 2004 or 2005, 51 percent were attending traditional public schools, 35 percent were attending public charter schools, and 14 percent were enrolled in private schools during their second year in the program.	86 percent
			Of students assigned to the control group in 2004 or 2005, 60 percent were attending traditional public schools, 27 percent were attending public charter schools, and 13 percent were enrolled in private schools after their first year in the program.	87 percent
Bettinger & Slonim (2006)	Toledo, OH	P	At the time of the survey 3-4 years after applications were made to the voucher program, 21 percent of unsuccessful voucher applicants were attending private school.	79 percent
Howell, Wolf, Campbel, & Peterson (2002); Howell & Peterson (2002)	New York City, NY	P	Of students not offered a voucher, 5 percent attended a private school in the first year after applying for the program.*	95 percent
			Of students not offered a voucher, 3 percent attended a private school in both the first and second years after applying for the program.*	97 percent
			Of students not offered a voucher, 2 percent attended a private school during the first three years after applying for the program.**	98 percent
	Dayton, OH	P	Of students not offered a voucher, 18 percent attended a private school in the first year after applying for the program.*	82 percent
			Of students not offered a voucher, 10 percent attended a private school in both the first and second years after applying for the program.*	90 percent
	Washington, D.C.	P	Of students not offered a voucher, 11 percent attended a private school in the first year after applying for the program.*	89 percent
			Of students not offered a voucher, 8 percent attended a private school in both the first and second years after applying for the program.*	92 percent
			Of students not offered a voucher, 3 percent attended a private school during the first three years after applying for the program.**	97 percent

V=Voucher; P=Private scholarship

* Howell, Wolf, Campbell, & Peterson (2002)

** Howell & Peterson (2002)

A different team of researchers studied the DCOSP after Congress reauthorized the program in 2011. They examined where the 2012, 2013, and 2014 student cohorts were enrolled after one year, two years, and three years since re-authorization of the program. At the end of both the first and second years, 90 percent of students in the control group were enrolled in traditional public schools or public charter schools (Dynarski et al., 2017). The Year Two evaluation took a closer look at switching with the two year period after students applied to the program (Dynarski et al., 2018). Of students in the control group, 90 percent were enrolled in public schools two years after applying to the program. During the first two years of the program, 9 percent of students in the control group either enrolled in a private school or changed between public and private schools. The Year Three evaluation reported that 89 percent of student cohorts in the control group were enrolled in traditional public schools or public charter schools three years of applying to the program (Webber et al., 2019).

Overall, there was very little variation in switcher rates observed during multiple longitudinal evaluations of the DCOSP. Over a sample period of seven years, switcher rates ranged from 86 percent to 90 percent.

Bettinger and Slonim (2006) conducted a survey of a random sample of families who applied to participate in a privately funded school voucher program in Toledo, Ohio. The survey was administered three to four years after application to the program by both successful and unsuccessful applicants. Part of the survey asked about the school students were currently enrolled at the time of survey. Results indicate that 21 percent of respondents' children who were not offered scholarships were enrolled in private schools, suggesting a longer-term switcher rate of at least 79 percent.

Howell, Wolf, Campbell, and Peterson (2002) and Howell and Peterson (2002) studied privately funded voucher programs in New York City, Dayton, and Washington, D.C. They reported the proportion of the treatment and control groups that attended a private school during the first year of the programs, during the first and second years of the program, and during the first three

consecutive years of the program.[8] The switcher rates are particularly high, especially in New York City. Five percent of the students not offered a voucher in New York City attended a private school in the first year and three percent attended a private school in both years, implying switcher rates of 95 percent to 97 percent.

The switcher rates were between 82 percent and 90 percent in Dayton. Results from the analysis of a privately funded scholarship program in Washington, D.C., align very closely with the results reported from the two longitudinal evaluations of the federally funded DCOSP. Observed switcher rates range from 89 percent to 97 percent.

Notably, Rouse (1998) used random assignment methods to study the effects of the Milwaukee Parental Choice Program and noted that 1 percent of students not selected to attend a choice school in the MPCP enrolled in a choice school anyway. Private schools participating in the MPCP ("choice schools"), however, represent a very small portion of all private schools in Milwaukee. If 99 percent of students in the control group not enrolling in choice schools all enrolled in district schools, then the switcher rate would be 99 percent. To the extent, however, that some students enrolled in religious private schools that were not enrolled in the MPCP, the switcher rate would be less than 99 percent. Because of this uncertainty, I do not include this study in the analysis.

Switcher Rates Among Minority Students

Howell, Wolf, Campbell, and Peterson (2002) also reported enrollment results for a subsample of African American students in their analyses of privately funded school choice programs in New York City, Dayton, and Washington, D.C. Table 2 reports these results. Switcher rates observed among African American students tended to be higher than the rates observed for the full control groups. The weighted average for these students is 93 percent and median switcher rate is 94 percent.

[8] The proportions of students in the control group that attended private school during the first three consecutive years in the New York City and D.C. programs were reported by Howell and Peterson (2002).

Table 2: Summary of Findings About Minority Student Switchers from Random Assignment Studies

Study	Location (evaluation)	Type of program	What analysis says about switchers	Switcher rate
Howell, Wolf, Campbell, and Peterson (2002)	New York City, NY	P	Of African American students not offered a voucher, 4 percent attended a private school in the first year after applying for the program.	96 percent
			Of African American students not offered a voucher, 1 percent attended a private school in both the first and second years after applying for the program.	99 percent
	Dayton, OH	P	Of African American students not offered a voucher, 15 percent attended a private school in the first year after applying for the program.	85 percent
			Of African American students not offered a voucher, 7 percent attended a private school in both the first and second years after applying for the program.	93 percent
	Washington, D.C.	P	Of African American students not offered a voucher, 11 percent attended a private school in the first year after applying for the program.	89 percent
			Of African American students not offered a voucher, 6 percent attended a private school in both the first and second years after applying for the program.	94 percent

P=Private scholarship

In New York City, four percent of the African American students not offered a voucher attended a private school in the first year and one percent attended a private school in both years, implying switcher rates between 96 percent and 99 percent. As with New York City, switcher rates observed among the group of African American students were slightly higher, up to 93 percent. Switcher rates observed among African American students in the control group were comparable to rates observed for the full sample. These results add to the face validity of the findings because less advantaged student populations are less likely to attend private schools without program assistance.

Switcher Rates By Year in Choice Program

The switcher rates observed across programs and locations appear remarkably stable. It may be the case that switcher rates from private school choice programs vary by the number of years students are in the program. Six evaluations of private school choice programs observed enrollment patters by groups of students for at least two years. Evaluations of two programs, the LSP (Mills & Wolf, 2019) and DCOSP pre-2011 reauthorization (Wolf et al., 2013), observed

switcher rates among students who applied for vouchers and did not receive them. Table 3 reports switcher rates reported in each study by year after students applied for voucher programs.

Table 3: Switcher rates from random assignment studies observed by year after students applied for program

	Number of studies	Min	Max	Mean	Median
One year	7	82 percent	95 percent	90 percent	90 percent
Two years	6	84 percent	97 percent	90 percent	90 percent
Three years	6	79 percent	98 percent	90 percent	89 percent
Four years	2	89 percent	89 percent	89 percent	89 percent

Overall, the mean and median switcher rates observed among students in the control group for each year after applying to the program is about 90 percent. These rates range from 92 percent to 95 percent for one year, 84 percent to 97 percent for two years, and 79 percent to 98 percent for 3 years.

Applying Switcher Information to Fiscal Impact Analyses

Legislative analysts routinely conduct fiscal impact analyses of private school choice bills introduced in state legislatures. The extent, however, to which these analyses account for important factors, such as offsets associated with switchers, can vary considerably (Ford & Merrifield, 2013). The information on switchers extracted from random assignment studies summarized in this paper can provide useful information for legislative fiscal bureaus to generate more accurate estimates about the potential fiscal effects of private school choice programs. Below illustrates how they can apply this information.

The net fiscal impact (*NFI*) of a voucher program for a state's budget can be estimated by the following equation:

$$NFI = (1-p) * (s*E) – (v*E)$$

where *p* denotes the share of students receiving vouchers who would have enrolled in a non-public school even without financial assistance from the voucher program; *s* denotes the average per-pupil cost to the state for funding students in the voucher program had they enrolled in a public school; *E* is the number of students who use a voucher; and v is the average cost of the voucher. The term *(1-p)* is the switcher rate. Thus, the term on the right hand side represents the estimated cost to the state to fund vouchers while the left hand side represents the estimated savings from students receiving vouchers who would likely enroll in public schools if without financial assistance from the choice program.

Consider a hypothetical example. A voucher program is introduced in a state for students from low income families. The average state cost to fund students enrolled in public schools is $5,000. School vouchers are equal to the state's cost, $5,000. In the program's first year, 2,5000 students participate in the program. The cost to the state to provide this assistance for students participating in the choice program is $12,500,000. Assuming that 90 percent of these students would have enrolled in public schools without the program in place, as suggested overall by switcher data from random assignment studies discussed in this paper, cost offsets for the state from having 90 percent of students using vouchers not in the public school system is $11,250,000, implying a net fiscal impact of ($1,250,000).

If the voucher amount is set at 90 percent of the state's cost, and if 90 percent of students using voucher are switchers, then the program would be revenue neutral for the state.

Discussion

Nine random assignment studies of private school choice programs have reported 27 unique estimates of the share of students in control groups who enrolled in public schools after not receiving a voucher offer. That is, these studies actually observed what percent of students whose families endeavored to exercise choice would have truly been switchers from public to private schools as a result of the opportunity afforded by the choice programs. The switcher rates they observed align well with assumptions about switcher rates employed in many fiscal analyses of private school choice programs. For example, Florida's Office of Program Policy Analysis and

Government Accountability conducted analyses to estimate the fiscal impact of the Florida Tax Credit Scholarship Program on the state's budget in FY 2008 and FY 2009 (OPPAGA, 2008; OPPAGA, 2010). These analyses assume 90 percent and 95 percent switcher rates, respectively.

Costrell (2010) assumed a 90 percent switcher rate in his study of the fiscal effects of the Milwaukee Parental Choice Program. He based his assumption on a number of factors, including random assignment research conducted on voucher programs, though he acknowledged at the time that the research to address switchers was "thin."

Switcher rates observed in a privately funded program and publicly funded program in Washington, D.C. also tend to be around 90 percent. It was even higher for a privately funded program in New York City, at least 95 percent. Taken together, this suggests that switchers in urban settings may be particularly high. Data from a four-year study of a statewide program, the Louisiana Scholarship Program, suggest switcher rates ranging from 84 percent to 92 percent.

In addition to the geographic scope of a program, family income may be another potential key determinant to switching. All of the programs discussed above are targeted to students from low-income families. For example, students must be eligible for the federal free and reduced price lunch program to be eligible for the school voucher program in Toledo. To be eligible for the DCOSP, one's family income must be below 185 percent of the federal poverty level, about $36,000 in 2012 (Wolf et al., 2013).[9]

Without any source of financial assistance, students from resource-constrained households are more likely to enroll in public schools than families with more resources. Thus, if programs expand to include families with higher income, then the rate of switching will likely decrease. As programs continue to be introduced and expanded, more research will be needed to study the effects of program design on switching.

[9] This estimate is equivalent to about $40,000 in 2019 USD. (Bureau of Labor Statistics, Inflation Calculator, accessed 5/21/2019 at https://data.bls.gov/cgi-bin/cpicalc.pl)

Assumptions about switcher rates used in other fiscal analyses are well below the range of switcher rates that were actually observed in random assignment studies, suggesting that some estimates of net fiscal effects may be significantly understated. For example, the Iowa Department of Revenue conducted an analysis to estimate the fiscal impact of Iowa's School Tuition Organization Tax Credit Program (Girardi & Gullickson, 2017). The analysis generates estimates based on a 30 percent switcher rate. It also estimated a break-even switcher rate of 15 percent. Students from households with income below 300 percent of the federal poverty limit are eligible to participate in the program. Although this income threshold is higher than many of the other programs examined by random assignment studies, the differences aren't great and likely do not justify a switcher rate that is about one-third the rates actually observed in random assignment studies.

Lueken (2018b) used a very broad range of switcher rates, from 60 percent to 90 percent, to generate estimates for the fiscal effects of tax-credit scholarship programs. Evidence from random assignment studies summarized in the present paper suggests that true switcher rates are closer to the high-end assumed rates. This evidence also runs contrary to criticisms by Huerta and Koutsavlis (2017), who argued that "due to an over-estimate of 'switchers'… the calculated savings are inflated" (p. 3) without providing any evidence to support their argument. Evidence from random assignment studies suggest that low-end estimates of fiscal effects reported by Lueken are significantly understated.

Conclusion

Analysts do not observe what sector school students would be enrolled (public or private) if the choice program did not exist. Even with good data collection by states or scholarship organizations, estimating switcher rates pose a challenge for analysts and may be biased. This paper summarizes data from random assignment studies to infer the extent to which students participating in private school choice programs are likely to enroll in public schools without these programs in place. Data from studies employing random assignment methods provide unbiased estimates of this counterfactual because they allow us to observe what type of school students enrolled in after they applied for a program and were denied a scholarship enroll.

Obtaining reliable estimates for switchers is important for fiscal analyses of choice programs, as estimates for the fiscal impact of a choice program are sensitive to this factor.

I reviewed 22 studies that used random assignment to evaluate private school choice programs in the United States and identified 27 unique estimates of switcher rates from nine studies of six private school choice programs that observed switcher rates for students who lost random assignment lotteries. Overall, switcher rates in these programs range from 79 percent to 98 percent. The weighted average is 91 percent, and the median is 90 percent. Switcher rates were similar for African American students participating in three privately funded school choice programs (New York City, Dayton, and Washington, D.C.), where the weighted average is 93 percent and median is 94 percent. Switcher rates used in some analyses of the fiscal effects of private school choice programs are well below the range of switcher rates observed in the body of random assignment studies, suggesting their estimates of net fiscal effects are significantly understated. Because switcher rates observed in the random assignment studies reviewed in this paper are remarkably stable across time and states, they provide reliable information for analysts to infer switcher rates when doing fiscal analyses elsewhere.

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