

RESEARCH

The Ripple Effect

*How private-school choice programs boost competition
and benefit public-school students*

ADVOCATES FOR TAXPAYER-FUNDED school-choice programs cite the potential of market competition to spur educational improvement and promote equity for low-income students. When public schools don't have to compete for students, the reasoning goes, they have less of an incentive to enhance their performance. Students whose communities don't guarantee access to a high-performing public school are unfairly shortchanged if their families can't afford to pay for a better alternative. Meanwhile, school-choice critics lament the exodus of talent and resources from public schools, which they argue such programs necessarily cause.

We often read about the launches and participation in publicly funded voucher or scholarship programs, which use tax dollars to help low-income students attend private schools. Most research on these programs examines their effects on voucher recipients, but that is only part of the story—and arguably not the most important part. What we really want to know is how market pressure affects the performance of local public schools over the long run. As a private-school choice program grows, how does increased competition affect educational outcomes for public-school students who don't use scholarships or vouchers?

We examine these questions based on a rich dataset from the state of Florida, where a tax-credit scholarship program for low-income students has been operating since 2002. During that time, the number of participating students has grown sevenfold to nearly 110,000 as of 2017–18, or 4 percent of total K–12 school enrollment in the state. We construct an index of competitive pressure to measure the degree of market competition each student's school faced prior to the program's start. Our analysis then looks at whether non-scholarship students experience negative effects, either in terms of their scores on reading and math tests or their rates of absenteeism and suspensions, based on this pre-program market pressure and the expansion of the program over time.

Instead, we find broad and growing benefits for students at local public schools as the school-choice program scales up. In particular, students who attend neighborhood schools with higher levels of market competition have lower rates of suspensions and absences and higher test scores in reading and math. And while our analysis reveals gains for virtually all students, we find that those most positively affected are students with the greatest barriers to school success, including those with low family incomes and less-educated mothers.

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Learning from Florida's Long-Lasting Scholarship Program

Twenty years ago, then-Governor Jeb Bush signed a groundbreaking new tax credit into Florida law. The 2001 initiative, soon renamed the Florida Tax Credit Scholarship Program, provides dollar-for-dollar tax credits to corporations that contribute to nonprofit Scholarship Funding Organizations. These organizations then distribute funds to low-income students to help cover the costs of private-school tuition and transportation. Because the funds are not directly collected through tax dollars, the resources students receive are conventionally described as scholarships, not vouchers. But in reality, the program operates much like a voucher program would.

In 2002–03, the first year of operation, the program spent \$50 million to fund annual scholarships of up to \$3,500 for 15,585 students whose household incomes were no greater than 185

in a given school year as well as the share of days that a student is reported absent, less the number of days suspended. Higher rates of separation from school, either due to absences or discipline-related suspensions, are associated with a higher risk of failing to graduate and being involved in the criminal-justice system in adulthood, making this an important predictor of student success (see “Proving the School-to-Prison Pipeline,” *research*, fall 2021). We observe suspension and absenteeism rates through the 2011–12 school year.

Calculating Competition

Building on our earlier work on the same program (see “Does Competition Improve Public Schools?” *research*, winter 2011), we use five measures to capture the degree of competitive pressure that each school is likely to face based on the pre-program presence of private schools within a five-mile radius. These are:

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percent of the federal poverty line (or \$33,485 for a family of four at that time). The program has expanded over the years and now awards scholarships worth \$6,815 a year, on average, to students with household incomes up to 260 percent of the federal poverty line, or \$68,900 for a family of four.

We look at the program's first 16 years, ending our analysis with the 2016–17 school year. Our data include students' test scores, absences, and suspensions, as well as race, ethnicity, and whether they qualify for free or reduced-price school lunch. We restrict our sample to the 81 percent of enrolled students who were born in Florida, some 1.2 million in all, for whom we also have detailed birth-records data. That includes measures of families' socioeconomic status at the time of the student's birth, neonatal outcomes such as birth weight, and characteristics of the student's mother at birth, including age, race, ethnicity, whether she was born in the United States, marital status, years of education, and whether Medicaid paid for hospital care.

We focus our analysis on students attending public schools in grades 3 through 8 during those years, because standardized test scores are most consistently available for this set of grades. Our main cognitive outcomes are scores on annual high-stakes standardized state tests in reading and math. While we include results on reading tests from the entire study period, the math results are from 2002–03 to 2013–14, after which accelerated math students could opt to take more advanced exams. We also calculate averaged mathematics and reading test scores for each student for those school years.

Uniquely, our analysis also explores the effects of competitive pressure on student behavior, including school discipline and truancy. We consider whether a student has ever been suspended

density, distance, diversity, slots, and churches. We calculate these measures individually and then use those values to construct a single composite “Competitive Pressure Index” measure. We then divide schools into two groups based on whether they face more or less competition than the median school and compare the effects of the program's expansion on student outcomes within each group. This enables us to determine whether the program's expansion matters more in places where schools faced a lot of competitive pressure than in places where schools faced relatively little.

The “Density” measure is based on the number of private schools serving the same grade range within a five-mile radius—for example, for a public elementary school, this measure would include the number of nearby private schools that also serve grades K–5. The “Distance” measure captures the distance between each public school and the nearest private competitor serving the same grade range. The “Diversity” measure is based on the number of different religious denominational categories represented among nearby private schools. The “Slots” measure captures the number of private-school students served in the same grade range within a five-mile radius divided by the number of grades served. The “Churches” measure is based on the number of houses of worship nearby. This measure captures two potential contributors to private-school enrollment: the religiosity of the community, which is associated with demand for private religious education, and the availability of building space where private schools may co-locate.

Our calculations are based on data from 2000, the last year before the tax-credit scholarship program was announced. We opt to measure competitive pressure based on the pre-program

landscape to avoid conflating the effects of increased competition with other school-quality factors that might influence outcomes. Each student is then assigned a school-level competition value based on the school attended in first grade. This addresses the concern that, if students move between public schools based on their perception of school quality, our estimates would capture more than just market competition.

We look at the demographics and performance of schools that are exposed to more or less than the median degree of pre-program competition and find substantial differences. At schools facing less competitive pressure, white students account for 68 percent of enrollment compared to 37 percent at schools with more competition. Schools facing less competition also enroll smaller shares of low-income students, with 67 percent of students ever qualifying for free or reduced-price school lunch compared to 76 percent of students at schools facing more competition. At schools with more competitive pressure, average test scores are 10.8 percent of a standard deviation lower in reading and 9.1 percent of a standard deviation lower in math than at schools facing less competition. These differences underscore the importance of using the changes in student outcomes that occurred within schools as the program expanded in order to discern the causal effects of competitive pressure, independent from selection effects.

Results

Our analysis finds consistent evidence that, as the scholarship program scaled up, academic and behavioral outcomes improved for students attending traditional public schools. More specifically, we find that students attending schools with more competitive pressure made larger gains as program enrollment grew statewide than did students at schools with less market competition. This difference was more pronounced for low-income students than their wealthier peers, suggesting that students eligible for the program benefited most from the increased competition it created.

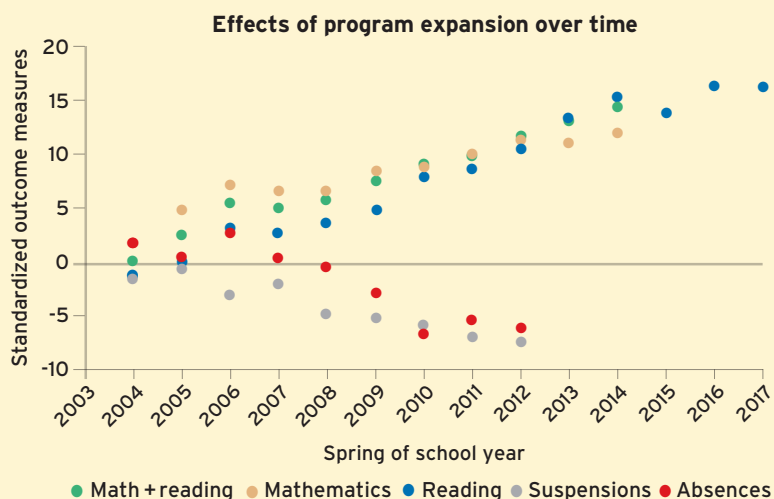
In looking at schools initially facing more market pressure, we find that a 10 percent increase in the number of students using scholarships to attend non-public schools increases reading scores by 0.7 percent of a standard deviation and math scores by 0.3 percent of a standard deviation, as compared to schools facing less competition. At the same time, the share of students being suspended each school year declines by 0.13 percentage points, or 0.9 percent of the

statewide average of 13.7 percent. In addition, the proportion of days that students were absent falls as well, by 0.03 percentage points, or 0.6 percent of the statewide average of 5 percent.

We see a similar pattern if we set aside program enrollment numbers and simply look at how the effects of initial levels of competitive pressure changed year by year as the program grew. Our analysis shows that reading and math scores at schools in markets with more competitive pressure increase by about 14.5 percent of a standard deviation by 2014, as compared to schools facing less competition (see Figure 1). By this time, the tax-credit scholarship program had quadrupled in size to about 60,000 voucher students. We also see growing improvements in student behavior at

Growing Benefits for Public-School Students Whose Schools Face More Competitive Pressure (Figure 1)

As Florida's tax-credit scholarship program scaled up, students enrolled at local public schools with more market competition from nearby private or parochial schools earned higher scores in reading and math and were less likely to be absent or suspended from school. Students in schools facing greater competition averaged 14.5 percent of a standard deviation higher combined math and reading scores by 2014, relative to the 2002-03 school year. Statistically significant declines in suspensions and absences began in 2006 and 2009, respectively.



NOTE: Outcomes are standardized to have mean zero and standard deviation of 100 in their respective empirical samples in order to compare the magnitudes of the effects across multiple outcomes. The baseline omitted year is 2003.

SOURCE: Authors' calculations

But schools in higher- and lower-competition environments did not have the same starting line—schools facing more competitive pressure experienced greater improvements but also tended to start with poorer outcomes. At the dawn of the program’s launch, schools with more market competition had reading and math scores that were 12.6 percent and 10.2 percent of a standard deviation lower than scores at schools with less competition (although absence and suspension rates were closely comparable). Our evidence suggests that increased competition contributed to a narrowing of this achievement gap.

Our analysis captures the degree of competitive pressure that each school is likely to face based on the pre-program presence of private schools within a five-mile radius. We then compare academic and behavioral outcomes among students whose schools are theoretically more or less affected by market competition.

We also look at results according to the level of education of students' mothers. As with income level, we find larger positive impacts among students whose mothers did not progress

beyond high school compared to those whose mothers graduated from college. We then consider these factors in combination, along with other details such as whether Medicaid paid for the hospital bill at birth and the median income of the mother's zip code at birth. We divide students into deciles based on their relative level of socioeconomic advantage to see whether the





STEP UP FOR STUDENTS

impacts of expanded competitive pressure differ along this spectrum of resources. While the effects are strongest for students in the bottom six deciles, students in every decile except the very top decile benefit from more competition. Notably, even students in the top decile do not suffer educational losses as a result of program expansion. Taken together, these patterns of results suggest that scholarship expansion may work partly through stimulating competition in schools that serve lower-income neighborhoods, through intensifying neighborhood schools' focus on better serving their low-income students, or a combination of both.

Alternative Explanations

So far, we have suggested that the improvements we have documented are due to public schools' responses to the

increased competitive pressure they face as a result of the scholarship program's expansion. But could the improvements in fact be driven by other factors? For instance, growth of the program could change the composition of students remaining in the public schools that face the most competition. It could also reduce class sizes in these schools if many children withdraw.

First, we consider the possibility that our results are due to changes in patterns of enrollment in different schools. For instance, if students who leave public schools to use the scholarship program tend to be lower-achieving on average, then the loss of those peers could leave behind a group that is, on the whole, more likely to earn higher scores on standardized tests. Such compositional changes could produce test-score improvements even if schools make no new efforts

in response to the competitive pressure caused by vouchers.

To investigate this, we look at whether schools facing increased competitive pressure would have higher predicted test scores and improved discipline, all else equal, based solely on changes in the background characteristics of the students enrolled. We calculate indexed values of those outcomes predicted in each school and year, given only student background data. If we see that schools with more competition also have student cohorts with greater predicted scores and better discipline enrolled over time, this would provide evidence that changes in student composition, rather than any efforts by schools, may explain the effects we documented above. We do see some hints of this pattern; however, the differences are generally statistically insignificant and too small in magnitude to explain much of the effects.

We then turn to the potential effects on public schools

use scholarships to attend private schools, students in public schools most likely to experience heightened competition due to the program see positive effects. Students at schools that face greater levels of market competition exhibited greater gains in reading and math tests compared to students attending public schools with less competitive pressure.

While these impacts are somewhat smaller than we might expect given the growth of the program, it's important to note that our comparisons are among students whose schools are theoretically more or less affected by market competition—not among students whose schools were and were not affected at all by the presence of a scholarship or voucher program. As a result, these differences are likely conservative estimates of the true impacts of the Florida Tax Credit Scholarship program on non-participating students. We further find that program expansion and increased market pressure are

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based on changes in class size associated with increases in competitive pressure. However, in considering the likely impact of class size on our results, we find that the coefficients are simply too small to explain away much of the cognitive or behavioral effects. Our estimates imply that schools would experience a reduction in class size per 10 percent expansion of the program of less than 0.1 students, which would translate into an improvement in test scores scarcely different from zero. Thus, class-size changes would explain only a small portion of the observed effects of program expansion.

Evidence of a Rising Tide

School-choice programs have been growing in the United States and worldwide over the past two decades, and thus there is considerable interest in how these policies affect students remaining in public schools. Although we now have relatively comprehensive knowledge on the immediate short-term effects of the introduction of such programs, our understanding of their effects as they scale up is virtually nonexistent. Here, we aim to provide new evidence using data from Florida where, over the course of 16 years, participation in a tax-credit scholarship program increased nearly seven-fold.

We look at the market landscape of local public schools, based on the availability of nearby private-school options, to compare the effects of the scholarship program's expansion on students whose schools face more and less market competition. We find consistent evidence that as more students

associated with positive behavioral outcomes among non-scholarship students, which have not been well-explored in prior research on the effects of competition from voucher programs or charter schools.

Finally, we note that the public-school students who are most positively affected come from lower socioeconomic backgrounds, which is the set of students that schools would potentially lose to competing private schools under a scholarship or voucher program. However, in most cases smaller effects remain statistically significant, even for students who are very unlikely to qualify for scholarships themselves. This suggests that benefits may come partially through generalized school improvements rather than through improvements targeted solely at eligible students. That raises an interesting question about the overall impact of more recently expanded taxpayer-supported school-choice programs, which also include students from middle-income families. Our findings from this long-lasting early program show that in Florida, at least, it seems that a rising tide of competition has lifted many boats.

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