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APPLES TO APPLES

The Definitive Look at School Test Scores in Milwaukee and Wisconsin for 2021





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APPLES TO APPLES

Executive Summary

WILL's *Apples to Apples* report puts schools on a level playing field to fairly assess the state of education in the Badger State across public, charter, and private voucher schools. Unfortunately, demographic factors historically play a large role in student performance. Any honest assessment of how schools—and school sectors—are performing must take those factors into account. This report endeavors to incorporate these factors through rigorous statistical modeling that controls for, and assesses the impact of, a number of student characteristics. Due to extreme variation in the Forward Exam participation rate of schools in each sector, an additional step of analysis was required this year to account for participation rates at each school. The results discussed below are adjusted for test participation where appropriate.

Key Findings:

- Students in the Milwaukee Parental Choice Program continue to outperform their public-school peers.** Proficiency rates in private choice schools were 4.6% higher in English/Language Arts (ELA) and 4.5% higher in math on average than proficiency rates in traditional public schools in Milwaukee.
- Charter school students in Milwaukee continue to outperform their public-school peers.** In both math and ELA, independent charter school students in Milwaukee saw about 2.6% higher proficiency on average than traditional public-school students.
- Forward Exam participation was higher in Milwaukee choice and charter schools.** Compared to public schools, choice students in Milwaukee participated in the Forward Exam at a 46% higher rate. Independent charter school students participated at a 39% higher rate.
- Statewide, choice students outperform their public-school peers in ELA.** Proficiency rates were about 4.6% higher for students participating in school choice statewide than traditional public-school students. No difference was found in math performance.
- Wisconsin continues to struggle with its achievement gaps.** Statewide, a school with 100% low-income students would be expected to have proficiency rates 42% lower than a school with no low-income students. For African American students, that gap is 14% in ELA and 15% in math.
- Little evidence was found that more spending affects student performance.** Once student and district demographics are taken into account, the level of per capita spending in a public school district has no statistical impact on student proficiency.
- Data inaccuracy is a major concern.** Proficiency reported in the media and in WiseDash did not accurately reflect student proficiency and the impact of the non-test-takers. Proficiency rates were deflated this year and will, consequently, be inflated next year.
- District size has a small, positive relationship with proficiency.** Contrary to the argument that smaller districts perform better, larger districts performed better to a very small extent (0.03%) in Wisconsin when controlling for other factors.
- For the first time, proficiency fell below 40% statewide in both math and ELA.** Even accounting for test non-participation rates, proficiency in Wisconsin's schools hit a record low in the 2020-21 school year.

Introduction

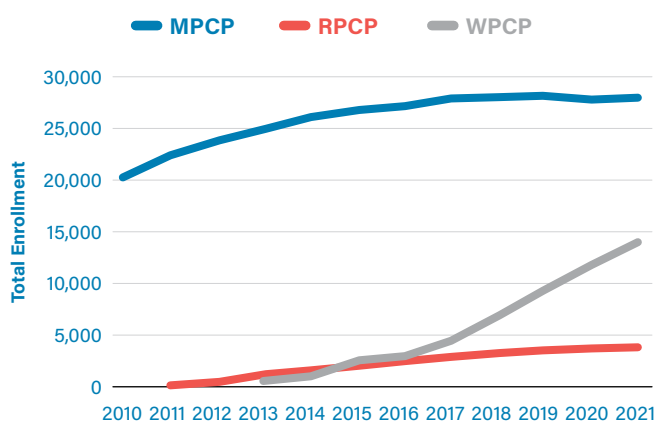
After a three-year hiatus due to a lack of data during the pandemic, WILL's *Apples to Apples* report is returning. In this report we endeavor to paint a complete picture of Wisconsin's schools, and to make comparisons on a level playing field that takes into account student characteristics. Additional challenges were presented this year as the state came out of the COVID-19 pandemic, particularly with varying levels of test participation across the state. Nonetheless, we provide the most comprehensive picture possible of student performance across sectors in Wisconsin.

Overview of School Choice in Wisconsin

PRIVATE SCHOOL CHOICE PROGRAMS

Wisconsin has four parental choice programs open to students in different areas of the state and with different characteristics: the Milwaukee Parental Choice Program (MPCP), Racine Parental Choice Program (RPCP), Wisconsin Parental Choice Program (WPCP), and the Special Needs Scholarship Program (SNSP). Each program covers a different area of the state, and is described in detail in the following sections. Schools participating in these programs are funded at a significantly lower level than Wisconsin's public schools. Schools accepting the voucher for high school receive \$8,946 per student. Students in grades K-8 receive \$8,300 per student. These figures are significantly less than any public school in Wisconsin. On average, traditional public schools receive \$13,749 in state and local funding per student.¹ Figure 1 details enrollment in each of the programs over the past 12 years, dating back to the 2010-11 school year.

Figure 1. Choice Program Enrollment by Year



Milwaukee Parental Choice Program (MPCP)

The MPCP is the oldest school-choice program in the country.² The program covers the geographic area of the City of Milwaukee, and only students whose families live in the city are able to use it. Even then, the program is only open to students in the City of Milwaukee whose families are within 300% of the federal poverty limit. There are no enrollment caps. The program served

28,770 students in 129 private schools during the 2020-21 school year.³

Racine Parental Choice Program (RPCP)

The RPCP expanded Wisconsin access to voucher schools beyond Milwaukee. The program began in 2011 and is open only to students who are residents of the Racine Unified School District and whose families' incomes are within 300% of the federal poverty limit. During the 2020-21 school year, the program included 3,940 students in 27 private schools. The RPCP does not have an enrollment cap.

Wisconsin Parental Choice Program (WPCP)

The newest school-voucher program in Wisconsin is the WPCP, which expanded access to vouchers statewide in 2013. The program has a lower income limit than other choice programs in Wisconsin, at only 220% of the federal poverty limit. This program also faces strict enrollment caps that are set to increase over the years at a slow rate. For 2020-21, 6% of students in each school district were eligible for enrollment. This increases by 1% per year until that number reaches 10% in the 2025-2026 school year, at which point the caps will be lifted altogether. During the 2020-21 academic year, there were 301 schools participating in the program serving 14,452 students.

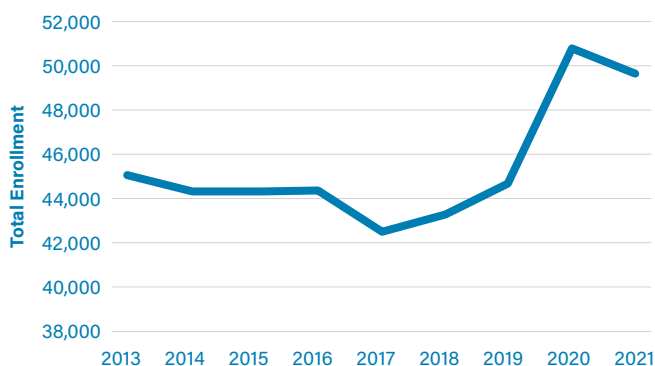
Special Needs Scholarship Program (SNSP)

The fourth private school-choice program in Wisconsin, the Special Needs Scholarship Program, is open to students in Wisconsin with disabilities who wish to attend a private school that better meets their needs. The amount of funding per student in the SNSP varies because expenses get partially reimbursed: schools can be reimbursed for 100% of expenses up to \$19,520, and then for 90% of expenses after that.⁴ There are 134 schools participating in the program and 1,757 students for the 2020-21 school year.

CHARTER SCHOOLS

Charter schools are public schools which have been given freedom from some district mandates. Wisconsin has three types of charter schools: instrumentality, non-instrumentality, and independent. These schools vary in the amount of freedom they have from school district policies. A number of charter schools operate as virtual schools—a sector that came to greater prominence during the pandemic. While non-instrumentality and instrumentality funding varies based on the individual schools' contracts with the district, the funding amount received by the school is often tied to the independent charter funding amount set by the state, which stands at \$9,100. School districts get the full amount of funding for the student and retain the remainder. Figure 2 shows enrollment across all types of charter schools over the last decade.⁵

Figure 2. Charter School Enrollment by Year



Enrollment held relatively steady around 44,000 until a big jump in 2020. Previous WILL research⁶ has shown that families were increasingly interested in established virtual options during the pandemic in lieu of the cobbled-together models many previously in-person public schools were having to utilize.

Instrumentality Charters

These schools are under the purview of the local school board, and their employees are employees of the district. Instrumentality charters also have far more limited curricular freedom than other charters. Without looking at individual school contracts, it is difficult to differentiate instrumentalities from those in the following category, non-instrumentalities. Consequently, throughout most of this paper we will refer to both types as “District Charters.”

Non-Instrumentality Charters

These charter schools are under the purview of the school district but maintain a level of independence not seen in traditional public schools. The teachers are employees of the school rather than the district and are not unionized.

Independent Charters

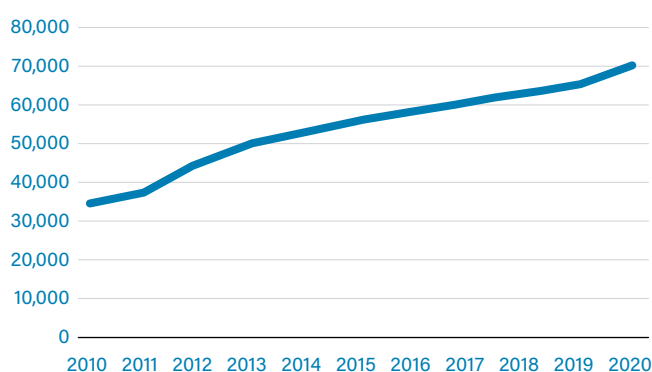
Independent charter schools are public schools outside of the purview of local school boards. They are chartered by a number of entities throughout the state, including the University of Wisconsin system and the City of Milwaukee. These schools are freed from many of the regulatory burdens found in traditional public schools. Thirty independent charter schools operate in Wisconsin, with eight located outside of Milwaukee.⁷

OPEN ENROLLMENT

Wisconsin’s largest school-choice program is the public-school open enrollment program. This program allows students from one school district to transfer to another district that has open seats. At their January meeting, school boards in districts across Wisconsin are required to determine and publicize the number of seats they have available for open enrollment within each grade. Before a

student can enroll in another district, school boards have discretion to consider a student’s disciplinary record and whether the district has the means to meet the needs of a student with a disability.⁸ Figure 3 shows the number of students who have utilized the open enrollment program over the past 11 years.

Figure 3. Open Enrollment by Year



TEST PARTICIPATION

Much of the work in *Apples to Apples* is predicated on having comparable data from one year to the next. Unfortunately, at the time of testing for the 2021 Forward Exam, several districts around Wisconsin remained closed for in-person instruction. Because the exam is required to be taken in person, this meant that families would have to bring their kids to the school solely for testing, before returning to an at-home instructional model following the exam.

This disjointed system led to significant numbers of students who didn’t participate in the state test. Table 1 depicts the districts with the lowest 10 average rates of participation on the Forward Exam. Note that this is the average by school, so it may vary slightly from the district-level average.

Table 1. Test Non-Participation by School District, 2020-21 Forward Exam

District	2020-20	2018-19	District	2020	2018-19
Milwaukee	55.9%	1.5%	Beloit	20.2%	1.7%
Madison	50.3%	4.7%	McFarland	19.2%	2.5%
Monona Grove	35.8%	0.7%	Menominee Indian	16.0%	1.1%
Green Bay Public	26.2%	1.1%	Tomorrow River	13.2%	9.7%
Kenosha	24.6%	0.6%	Nekoosa	15.6%	5.8%

In Milwaukee and Madison, the majority of students did not take the test. This means that in two districts that are already struggling greatly to educate at-risk kids, two school years of testing data will be missing for the majority of students. WILL has extensively analyzed which students are missing in another policy brief⁹ and found that, per the evidence, it is likely that the lack of participation by many students is actually masking even larger proficiency declines than what the extant Forward data already suggests.

DPI included all of the kids that did not participate in the state test as part of the denominator when reporting proficiency data on WiseDash. This means we are likely to see a huge jump in proficiency in many of these districts next year relative to what was widely reported in the media, even if actual proficiency rates haven't improved at all merely because the number of participants rose.

Table 2 shows the results of a regression analysis of school sector and test participation, in Milwaukee and out-state. (This table only uses participation in mathematics, but the results are similar for English/Language Arts.)

For comparison of schools outside of the Milwaukee region, the data is similar to previous years. Private schools participating in the WPCP

have less student participation in state testing. Unlike public school students, private school students not participating in the choice program are not required to take the state-mandated tests. In smaller private schools, some parents opt their children out of the state tests. Participation rates are approximately 26.5% lower in choice schools than traditional public schools statewide.

In Milwaukee, however, the results are the opposite—private school voucher students were significantly more likely to participate in the state exam than traditional public-school students. Private choice schools had higher participation rates by about 46 percentage points on average compared to traditional public schools. Charter schools follow a similar pattern, with 39% higher participation in Milwaukee coupled with lower participation of about 13% outside of the city.

In a report concerned with identifying sector differences, these dramatic variations in test participation must be accounted for. At the same time, the high correlation with school sector may serve to mask results. Consequently, our main results are presented two ways—with participation included as a control variable and without.

Table 2. Test Participation by School Sector

VARIABLES	(1) Participation- Milwaukee	(2) Participation- Rest of Wisconsin
Private Choice	0.464*** (0.0320)	-0.265*** (0.0147)
Charter	0.388*** (0.0364)	-0.128*** (0.0139)
African American	-0.00464 (0.0752)	-0.385*** (0.0478)
Hispanic	0.135 (0.0869)	0.125** (0.0508)
Economic Status	-0.241*** (0.0883)	-0.0694*** (0.0203)
English Learner	-0.158 (0.129)	-0.560*** (0.0746)
Enrollment	9.10e-05** (4.61e-05)	-5.66e-05*** (1.22e-05)
Elementary/Secondary	-0.234*** (0.0444)	-0.102*** (0.0179)
High School	-0.226*** (0.0343)	-0.0282*** (0.00887)
Junior High	--	0.00603 (0.0379)
Middle School	-0.000684 (0.0646)	-0.0258*** (0.00941)
Constant	0.172** (0.0810)	1.153*** (0.0191)
Observations	253	1,960
R-squared	0.617	0.297

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

METHODS

Wisconsin is relatively unique in providing extensive data on the demographic and economic characteristics of schools in choice programs across all sectors—public, charter, and private. The data set shows a school’s racial makeup, socioeconomic status, enrollment counts, and English language learner counts. The data used in our *Apples to Apples* studies enables a more fine-grained analysis than has been conducted previously (outside of the work by the School Choice Demonstration Project, for which individual-level student data was made available by DPI).

The factors considered for the *Apples to Apples* analysis include:

- the percentage of minority students,
- the percentage of students in the school who are economically disadvantaged,
- the school enrollment,
- the percentage of students in the school who are English language learners, and
- the grade levels served by the school.

We also attempt to account for the number of disabled students in the school, though this presents a special problem for choice schools.

Our dependent variables are primarily measures of achievement gathered from DPI’s WISEdash system for the 2020-21 school year. We gathered data on two of the most important subject areas for success later in life: reading and mathematics.* This data is aggregated at the school level. Students who took the alternative exam for disabilities are not included in the analysis. In most Wisconsin

school districts economic disadvantage is defined as whether or not the student utilizes free or reduced lunch. However, some school districts in the state have universal free lunch—known as Community Eligibility.

In these districts, alternative measures of economic status are utilized. These include reporting the results of the count of students in the school whose families are eligible for various forms of public assistance and having families report their income status directly on another form.¹⁰ These alternative metrics are less accurate, and have led to problems for researchers who rely on this data in evaluating American education.¹¹ Particularly for some private schools in the choice program, the data tends to severely underestimate the number of low-income students. Consequently, our results on the performance of choice students relative to other sectors should be seen as conservative.

In the formal analysis, we attempt to determine the effect of types of schools by modeling test scores. Test scores are only included for the choice students in each school rather than for all students in the school since we are most interested in determining the association of school choice with performance rather than the association of private schooling in general with performance. In the primary analysis, this is done through the inclusion of fixed effects for each Wisconsin school district. Thus, we run the following model:

$$\text{Test Score} = \beta_1(\text{Private}) + \beta_2(\text{Charter}) + \beta_3(\text{Controls}) + \mu$$

Note that there is little need to control for the types of charter schools, because they are primarily district charters outside of Milwaukee with only a few exceptions. Because Milwaukee itself contains

* The other subjects tested on the Forward Exam are Science and Social Studies.

a far wider variety of charter schools (with varying degrees of connectedness to the school district) than the rest of the state, we include controls for the types of charter schools for that city's modeling. Thus, for Milwaukee, we run the following model on both Forward Exam and ACT data:

$$\text{Test Score} = \beta_1(\text{Private}) + \beta_2(\text{Independent Charter}) + \beta_3(\text{District Charter}) + \beta_4(\text{Controls}) + \mu$$

SUMMARY STATISTICS

Before we move in to the more formal statistical analysis, this section provides a brief look at the overall state of student performance in Wisconsin schools. When one looks at the raw numbers, student proficiency fell dramatically in both math and ELA in 2021 relative to previous years. However, given the high levels of test non-participation this year, it is important to note that all students who didn't take the exam are included in DPI's denominator when evaluating proficiency. This can have a dramatic effect on results. For instance, consider Milwaukee's ELA results, where more than 56% of students didn't take the test. The reported proficiency rate automatically counts all of these non-takers as not proficient:

$$\begin{aligned} \text{Proficient} &= 2,189 \\ \text{Non-Takers} &= 16,786 \\ \text{Takers} &= 13,228 \end{aligned}$$

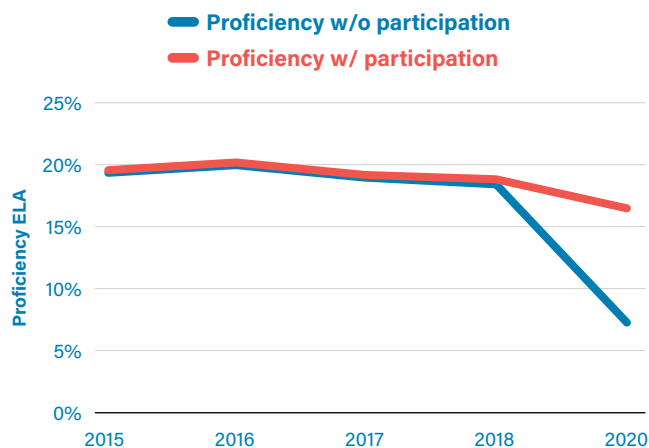
$$\text{Corrected \%} = 2,189 / (13,228 + 16,786) = 7.3\%$$

However, it seems dishonest to count all of these students in the denominator. A fairer way to assess district proficiency would be among test takers:

$$\text{Corrected \%} = 2,189 / 13,228 = 16.5\%$$

This reported proficiency rate is still significantly lower than previous years, but likely is more reflective of the current situation in the district. Some may argue that this is being too kind to districts like MPS that failed to open. But note what will happen when most of these students take the test next year: proficiency will almost certainly make a huge jump that the district will be able to inaccurately claim credit for. To illustrate the unusual importance of this problem this year, Figure 4 depicts ELA proficiency with and without the exclusion of non-participating students. One can easily see that the numbers track relatively well in all previous years, when non-participation rates were under 2%. But in 2021, when non-participation rates exceeded 50% in Milwaukee, there are large implications for our understanding of how students are doing.

Figure 4. Proficiency over Time, With and Without Exclusion of Non-Participants



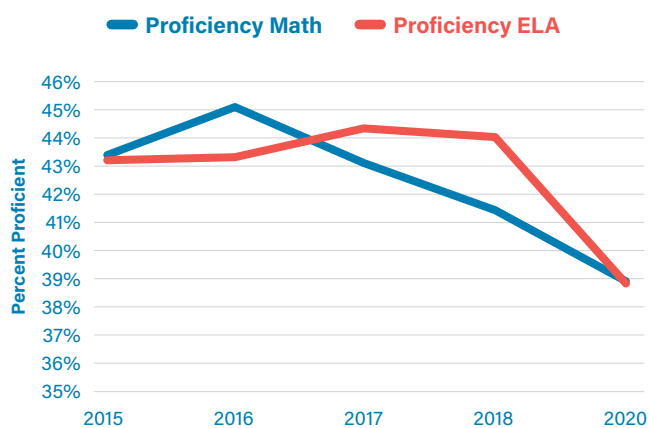
Since the 2011-12 school year, proficiency rates in Wisconsin have been aligned with the scores of the National Assessment of Educational Progress (NAEP), a national test that assesses student performance on a level playing field. The NAEP defines proficiency as:

NAEP Proficient represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency

over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

When these standards were implemented statewide, proficiency dropped by about 30% in both math and ELA, indicating that the old standards were painting a rosier picture of student performance than was warranted. In Figure 5, we report the results since the 2015 implementation of the current state exam (the Forward Exam). These results are based on the exclusion of non-participants.

Figure 5. Proficiency Over Time, All Public Schools



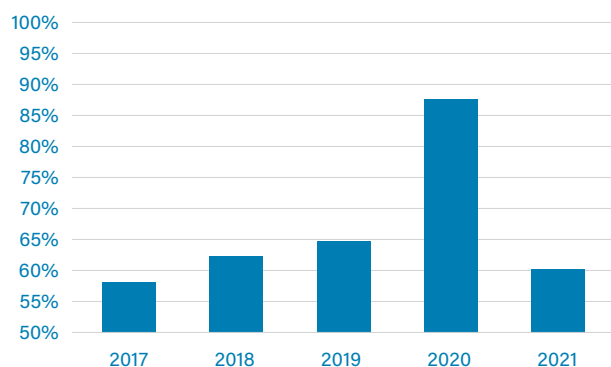
Even in accounting for the number of students who didn't take the exam, the proficiency rate in the state fell significantly in the 2020-21 school year in both math and ELA. For the first time since the implementation of the Forward Exam, proficiency fell below 40% statewide in both subjects.

DATA PROBLEMS

A number of problems with this year's data are worth noting, in addition to the participation issues already discussed. First, we continue to see issues with the reporting of low-income status. Some private schools

in the choice program report 0% of their students as being low-income. Given that the choice program is only open to students who fall under 220% of the federal poverty limit in the WPCP or 300% in the RPCP and MPCP, this seems incredibly unlikely. Another problem is extreme variation in low-income reporting, which affects public schools as well as private schools. For example, the Cudahy school district's extreme variation over the past few years is shown in Figure 6.

Figure 6. Low-Income Status by Year, Cudahy



For both public schools and private schools, problems in the reporting of low-income status can have important impacts on their state report card score. The relative importance of proficiency versus student growth changes dramatically based on the number of low-income students in the school, and can mean the difference in a school being categorized as "Meets Expectations" or "Fails to Meet Expectations."¹²

Accurate data is especially difficult to garner in private schools that don't participate in the free-and-reduced lunch program, and for school districts where every student receives free meals, as there is little incentive for parents to provide their income information in such circumstances. Because of issues around the low-income numbers and participation, we will not be producing a

school-by-school ranking this year. That said, this highlights once again for schools the need to do their best to acquire accurate data on the income status of students and for DPI to consider better ways to collect this important data.

RESULTS

Milwaukee

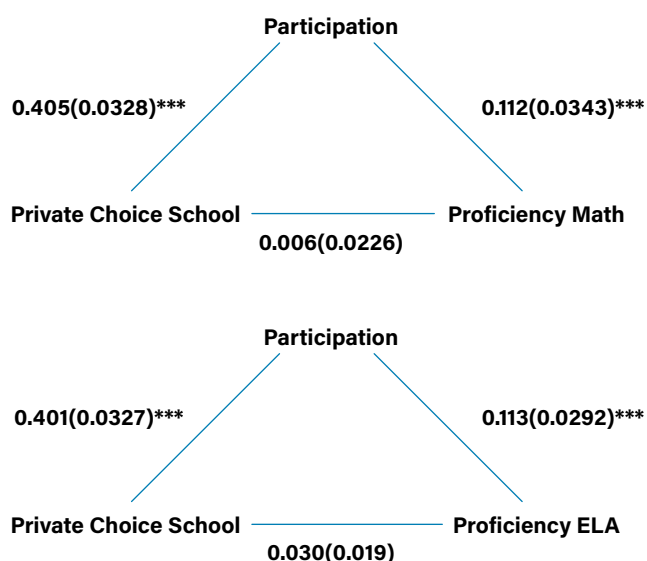
The results from our analysis of Milwaukee data can be found in Table 3. The first two columns are the analysis without the inclusion of a test participation control variable; the second two include that control.

In the first two columns (before the inclusion of the participation variable), we see effects of the school sector on proficiency similar to what we've seen in previous years. Proficiency in private choice schools is approximately 6% higher in math and 8% higher in English/Language Arts than in traditional public schools. Proficiency in district charters is about 5% higher in math and 6% higher in ELA, while independent charters enjoy a performance advantage of about 4% in ELA. They were statistically no different from traditional public schools in math. However, the inclusion of the participation variable fully erases these results because of its high correlation with reopening. In other words, because proficiency is so closely related to school sector, the model cannot differentiate the effect of one from the other due to their high correlation.

What is needed here is an alternative model that can account for this correlation. Fortunately, a technique known as mediation analysis allows us to do this. Mediation analysis is a statistical technique

to measure the extent to which the relationship between two variables is erased (“mediated”) by the inclusion of a third variable. These results are depicted in the figures below using a common technique for situations of mediation.¹³

Figure 7. Mediation of the Effect of School Choice on Proficiency by Participation



The results* suggest that the effect of private school choice on proficiency is completely mediated in the case of both math and ELA. Our best estimate of the effect of private school choice on proficiency in Milwaukee is the product of the upper two arms of the triangle—4.5% in ELA and 4.6% in math. Similar effects exist among charter schools. For independent charters, we estimate an effect of 2.6% in both math and ELA. Mediation was not found for district charters, meaning that their advantage over traditional public schools was fully accounted for by controlling for participation.

* The mediation technique here is as follows: regress private school choice on participation. Then, run the full model that includes participation. Then, use the Baron and Kenny method for identifying the significance of the indirect effect—the product of the upper two arms of the triangle in Figure 7.

Table 3. Relationship Between Sector and Proficiency, Milwaukee

VARIABLES	(1) Math Proficiency	(2) ELA Proficiency	(3) Math Proficiency	(4) ELA Proficiency
Private Choice	0.0609*** (0.0157)	0.0849*** (0.0135)	0.00668 (0.0230)	0.0302 (0.0196)
District Charter	0.0475** (0.0231)	0.0590*** (0.0199)	0.00973 (0.0256)	0.0209 (0.0218)
Indep. Charter	0.0319 (0.0236)	0.0448** (0.0202)	-0.0155 (0.0275)	-0.00306 (0.0235)
Afr. American	-0.204*** (0.0391)	-0.316*** (0.0336)	-0.190*** (0.0386)	-0.302*** (0.0329)
Hispanic	-0.152*** (0.0448)	-0.181*** (0.0385)	-0.152*** (0.0439)	-0.181*** (0.0374)
Low Income	-0.278*** (0.0444)	-0.314*** (0.0381)	-0.266*** (0.0437)	-0.301*** (0.0372)
English Learner	-0.0590 (0.0634)	-0.165*** (0.0544)	-0.0461 (0.0623)	-0.152*** (0.0531)
Enrollment	3.86e-06 (2.28e-05)	4.81e-05** (1.96e-05)	-7.25e-07 (2.24e-05)	4.34e-05** (1.91e-05)
Participation	--	--	0.112*** (0.0352)	0.113*** (0.0300)
Elementary/Secondary	-0.0542** (0.0228)	-0.0386* (0.0196)	-0.0374 (0.0230)	-0.0217 (0.0196)
High School	0.00960 (0.0169)	-0.00202 (0.0145)	0.0343* (0.0183)	0.0229 (0.0156)
Middle School	0.0229 (0.0314)	0.0509* (0.0270)	0.0228 (0.0308)	0.0507* (0.0262)
Constant	0.469*** (0.0327)	0.604*** (0.0281)	0.405*** (0.0378)	0.539*** (0.0322)
Observations	247	247	247	247
R-squared	0.520	0.733	0.540	0.748

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Results: Statewide

The results for our analysis of schools outside of Milwaukee are found in Table 4. Because participation numbers did not dramatically affect the statewide results as they did in Milwaukee, we only present the models including participation.* Recall that our dependent variable in this analysis is the share of students in the district who were proficient or advanced.

In terms of ELA proficiency, we see concerning results in terms of achievement for African American, Hispanic, and low-income students. A hypothetical school with 100% African American students would be expected to have proficiency rates in ELA 14.1% lower than a school with no African American students. In a similar scenario, proficiency rates for a school with only Hispanic students would be expected to be 4.6% lower, while an all-low-income school would see proficiency rates 42.6% lower. These effects are additive, meaning a school with many low-income African American students suffers even more. The data here shows that the failure of Wisconsin to educate students from diverse backgrounds is not just a Milwaukee problem.

We see more intriguing results for choice and charter schools here. Proficiency rates for all choice-participating students in private choice schools were 4.1% higher in ELA than in traditional public schools. For district charters, proficiency rates were 2.1% higher than in traditional public schools.

The results for mathematics are even more concerning on some of our control variables. A nearly 50% swing in proficiency (46.1%) would be predicted going from a school of all low-income students to a school with no low-income students. For Hispanics and African Americans on a similar

Table 4. Relationship Between Sector and Proficiency, Statewide

VARIABLES	(1) ELA Proficiency	(2) Math Proficiency
Choice	0.0404*** (0.00842)	-0.00952 (0.00979)
District Charter	0.0322*** (0.00845)	-0.0223** (0.00982)
Indep. Charter	0.0337 (0.0212)	-0.00782 (0.0247)
African American	-0.141*** (0.0148)	-0.151*** (0.0173)
Hispanic	-0.0416* (0.0223)	-0.108*** (0.0259)
Low Income	-0.426*** (0.0125)	-0.461*** (0.0145)
English Learner	-0.0810** (0.0379)	-0.0448 (0.0440)
Participation Rate	0.0175 (0.0135)	0.0521*** (0.0156)
Elem./Secondary	-0.0181* (0.0105)	-0.0909*** (0.0122)
High School	-0.0398*** (0.00538)	-0.128*** (0.00624)
Junior High	-0.0195 (0.0249)	-0.135*** (0.0290)
Middle School	-0.000741 (0.00605)	-0.0948*** (0.00704)
Constant	0.574*** (0.0146)	0.610*** (0.0170)
Observations	2,184	2,184
R-squared	0.629	0.642

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

* Mediation analysis revealed that the effects were not mediated in this case, so we do not use this technique either.

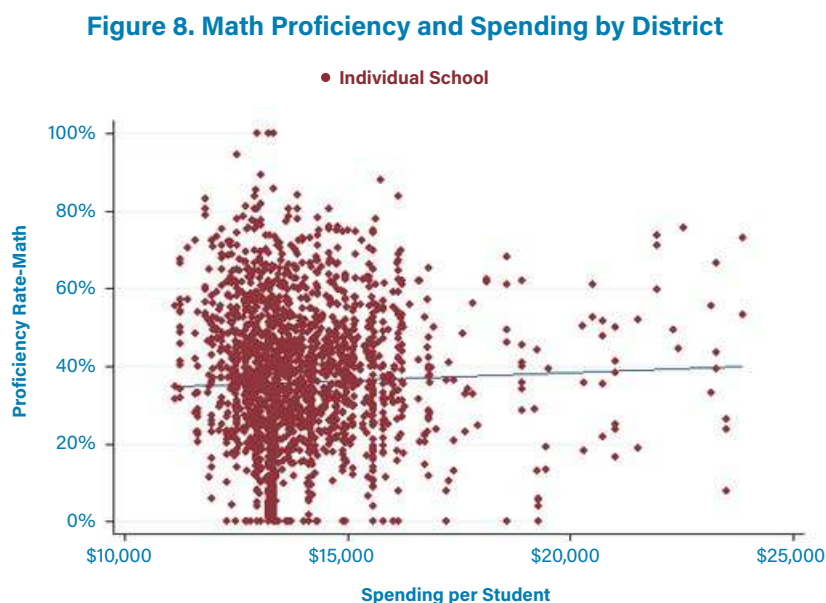
metric, these numbers are 10.8% and 15.1%, respectively. The results for choice and charter are a bit more ambiguous here. Similar to our past *Apples to Apples* reports, we see no difference in the academic performance of choice students in math relative to traditional public-school students.

Among district charters, we actually see significantly lower performance relative to traditional schools of 2.2%. It is important to note here that most virtual schools in Wisconsin are classified as district charter schools. Separating these schools out from the local district data renders the relationship between district charters and math proficiency insignificant. See Appendix Table A1 for this result.

SCHOOL FINANCE

Every other year, when it comes time to work on the state budget, the inevitable call comes from school districts to spend more. It is absolutely true that Wisconsin has big disparities in spending between school districts and school sectors.¹⁴ However, historically this has borne little impact on overall student proficiency. Figure 8 depicts the relationship between spending per district and student proficiency.*

Each red dot represents an individual Wisconsin school: higher math proficiencies move the dots higher (y-axis) where 1 means 100% proficiency, while higher per-pupil district spending in that



* The largest outliers, spending more than \$25,000 per student, are excluded from Figure 8 for ease of readership.

school district moves dots further to the right (x-axis). The blue line represents a bivariate regression of the relationship between the two variables. The line has the slightest upward trajectory, but is largely flat (the relationship between the two variables is statistically insignificant). Similar results occur for ELA proficiency. Of course, a full analysis requires the inclusion of control variables like in the previous sections of the paper.* Table 5 depicts this analysis.

For both math and ELA, there is no significant relationship between spending and proficiency in Wisconsin. For math, the relationship is infinitesimally small on the positive side (0.0000073) and insignificant. For ELA, the relationship is actually negative, though again insignificantly so. The bottom line is that there is little reason to believe that more spending will lead to better outcomes for Wisconsin students based on the available data.

DISTRICT EFFICIENCY

Given the information we have on school spending, it is interesting to consider which districts are most efficient with taxpayer money. First, we undertake a similar regression analysis to that in the preceding section—only this time, we consider district-level data. For simplicity, we also combine proficiency in math and ELA to create an average proficiency between the two subjects. The results of that analysis are included in Table 6.

In this analysis on a smaller dataset, economic status and test participation are among the top factors in predicting student proficiency. There has been much discussion as of late about whether the size of school districts has a significant impact

Table 5. Relationship Between Spending and Proficiency

VARIABLES	(1) Math Proficiency	(2) ELA Proficiency
Spending, \$1000s	7.30e-05 (0.00117)	-0.000626 (0.00101)
African American	-0.162*** (0.0173)	-0.138*** (0.0149)
Hispanic	-0.123*** (0.0251)	-0.00613 (0.0217)
Low Income	-0.448*** (0.0151)	-0.420*** (0.0130)
English Learner	-0.0500 (0.0433)	-0.146*** (0.0375)
Enrollment	2.65e-05*** (8.34e-06)	1.59e-05** (7.22e-06)
Participation	0.0519*** (0.0156)	0.0182 (0.0135)
Elem./Secondary	-0.101*** (0.0117)	-0.00335 (0.0102)
High School	-0.133*** (0.00646)	-0.0425*** (0.00560)
Junior High	-0.140*** (0.0299)	-0.0205 (0.0259)
Middle School	-0.0941*** (0.00711)	-0.00403 (0.00616)
Constant	0.596*** (0.0250)	0.579*** (0.0217)
Observations	2,167	2,167
R-squared	0.644	0.626

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

* (But is graphically unfeasible.)

on proficiency. Note also that enrollment at the district level is positively correlated with performance—on average, larger districts do slightly better in Wisconsin. We use the numbers in this table to make an individual prediction about the proficiency level of each school, and compare it to the actual, observed proficiency in the school. This is a similar statistic to “Wins Above Replacement (WAR)” in baseball—numbers above zero indicate a school that is doing better than expected while numbers below zero indicate a school doing worse than would be expected. Then, we divide that number by district spending in tens of thousands. The top 10 and bottom 10 districts in terms of “bang for the buck” are listed in Table 7.

According to these results, the most efficient school in the state is South Shore School District, located along the shores of Lake Superior in northern Wisconsin. In this district, each additional \$10,000 of spending is related to an increase in proficiency of 10.31%. South Shore is a very unusual district—characterized by some of the highest spending in the state per student (\$20,515 according to the most recent data) while also being over 50% low income. The district has a low year-round population and likely a large number of vacation homes, which accounts for a high level of per student spending in the district.

At the opposite end of the spectrum are districts where proficiency is lower than would be expected given what is being spent. Crandon School District gains about 10.72% fewer points of proficiency for every \$10,000 spent. Overall, it is difficult to arrive at any sort of pattern here, other than that primarily rural districts predominate both ends of the efficiency scale. Some may be wondering where Wisconsin’s largest districts rank on this metric. The top and bottom 10 districts for efficiency with more than 2,000 students are listed in Table 8, and the efficiency scores for the top five largest districts are in Table 9.

Madison Metropolitan and Kenosha are the only school districts of the largest five that come out on the positive side for efficiency. All of the other districts fall below 200 in the rankings, including Green Bay at a woeful 376th (out of 418).

Table 6 District-Level Relationship Between Spending and Average Proficiency

VARIABLES	(1) Average Proficiency
African American	-0.154* (0.0884)
Hispanic	-0.246*** (0.0889)
Low Income	-0.472*** (0.0213)
English Learner	0.305** (0.153)
Enrollment (1000s)	0.00310*** (0.00115)
K-8	0.0645*** (0.0115)
Participation	0.212*** (0.0727)
Constant	0.381*** (0.0722)
Observations	418
R-squared	0.655

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7. Top 10 and Bottom 10 Districts in Spending Efficiency

Top 10:		Bottom 10:	
District Name	Efficiency	District Name	Efficiency
South Shore	10.31%	Crandon	-10.72%
Lake Country	10.25%	Rosholt	-10.29%
Silver Lake J1	10.23%	Walworth J1	-10.08%
Cornell	10.10%	Wausaukee	-10.06%
Stanley-Boyd Area	10.04%	Genoa City J2	-9.8%
Hartland-Lakeside J3	10.01%	Neillsville	-9.6%
Platteville	10.00%	New Lisbon	-9.6%
Bruce	9.8%	Highland	-9.4%
Hayward Community	9.8%	Marinette	-9.2%
Sevastopol	9.6%	Wabeno Area	-9.2%

Table 8. Top 10 and Bottom 10 Districts for Efficiency >2,000 Students

Top 10:		Bottom 10:	
District Name	Efficiency	District Name	Efficiency
Cedarburg	8.4%	Seymour	-8.7%
Muskego-Norway	8.9%	Tomah Area	-8.3%
Hamilton	7.9%	Holmen	-7.0%
Whitefish Bay	7.3%	De Forest Area	-5.1%
Slinger	7.1%	Green Bay Area	-5.1%
Mequon-Thiensville	6.8%	Greenfield	-5.1%
Madison Metropolitan	6.4%	Howard-Suamico	-4.7%
Arrowhead High	6.2%	Appleton Area	-4.4%
Kimberly Area	5.9%	Sparta Area	-4.2%
New Berlin	5.5%	Milton	-4.2%

Table 9. Efficiency Rankings—Five Largest Districts

District	Efficiency Score	Ranking
Madison	6.4%	35th
Green Bay	-5.1%	376th
Kenosha	2.1%	124th
Milwaukee	-2.2%	288th
Racine	-4.2%	345th

Conclusion

Even after a two-year gap in this analysis, the results are similar. Choice and charter schools in Wisconsin, on average, do a better job at achieving proficiency when the playing field is leveled to make objective comparisons. This is particularly true in Milwaukee, where choice and charter students exceed their public-school peers across all measured metrics.

Even with the success of Wisconsin's school choice options, there is more work to be done to ensure that they can achieve their full potential. Creating greater funding equality for choice and charter schools is key to this process. While there is likely a point of diminishing returns that many public-school districts have crossed, it is fundamentally unfair for the value of a child to change based on the school door they walk through. Through changes along these lines, Wisconsin can continue to be a leader in education reform, and the benefits of school choice that have been seen in this report can continue to spread.



Appendix

Table A1. Math Proficiency with Virtual & District Charters Separated

VARIABLES	(1) Math Proficiency
Private Choice	-0.00738 (0.00973)
Independent Charter	-0.00511 (0.0247)
District Charter	0.135 (0.0834)
African American	-0.153*** (0.0175)
Hispanic	-0.112*** (0.0258)
Low Income	-0.460*** (0.0146)
English Learner	-0.0420 (0.0440)
Participation	0.0500*** (0.0160)
Virtual School	-0.154* (0.0819)
Elementary/Secondary	-0.0925*** (0.0129)
High School	-0.129*** (0.00624)
Junior High	-0.134*** (0.0290)
Middle School	-0.0946*** (0.00704)
Constant	0.765*** (0.0854)
Observations	2,184
R-squared	0.642

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Endnotes

- 1 <https://sfs.dpi.wi.gov/SFSdw/CompRevReport.aspx>
- 2 Vermont sometimes claims this distinction, but the first modern voucher program is indisputably Wisconsin's.
<https://www.edchoice.org/school-choice/faqs/how-long-has-school-choice-been-around/>
- 3 https://dpi.wi.gov/sites/default/files/imce/parental-education-options/Choice/Data_and_Reports/2021-22/2021-22_mpcp_facts_and_figures.pdf
- 4 https://dpi.wi.gov/sites/default/files/imce/parental-education-options/SNSP/snsp_facts_and_figures_for_2021-22.pdf
- 5 <https://dpi.wi.gov/parental-education-options/charter-schools/archives>
- 6 <https://www.tandfonline.com/doi/abs/10.1080/15582159.2021.1917750?journalCode=wjsc20>
- 7 <https://dpi.wi.gov/parental-education-options/charter-schools/current>
- 8 https://docs.legis.wisconsin.gov/misc/lfb/informational_papers/january_2021/0029_open_enrollment_program_informational_paper_29.pdf
- 9 <https://will-law.org/wp-content/uploads/2021/11/2021-11-01-Lost-Kids.pdf>
- 10 <https://dpi.wi.gov/wise/data-elements/econ-status>
- 11 <https://www.urban.org/research/publication/measuring-student-poverty>
- 12 <https://will-law.org/wp-content/uploads/2021/12/2021-12-2-Report-Cards-FINAL-1.pdf>
- 13 <https://www.statisticssolutions.com/baron-and-kennys-method-for-mediation/>
- 14 <https://will-law.org/tag/fund-every-kid/>





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