



Policy Brief

Wisconsin Institute for Law & Liberty



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Growth and Gaps

Comparing different types of public schools in Wisconsin

Introduction

Charter schools were designed to be public schools that facilitate educators' efforts to navigate around bureaucratic inefficiencies and the influence of labor unions in traditional public schools. But while these schools, and school choice in general, have a long and rich history in Milwaukee, there is still much room for expansion and improvement across the Badger State. For years, legislators have prioritized traditional public schools, which tend to be one-sized-fits-all, over independent public charter schools. But, which model is the best for our children?

In order to help answer this question, we conducted an econometric analysis to evaluate how all Wisconsin public charter schools compared to traditional public schools throughout the state. We compared schools' student growth and achievement gap scores. The "student growth" measure assesses each school on "students' progress toward higher performance levels and any student declines below the Proficient level" (DPI, 2014). The "achievement gaps" measure evaluates each school "based on the rate of change in student achievement and graduation from one year to the next among key student groups" (DPI, 2014).

After performing our analysis, we reached the following conclusions (full results on page 4):

- 1) Independent charter schools, i.e. those authorized by entities other than school districts, scored significantly higher on *all* student growth and achievement gaps measures than traditional public schools throughout Wisconsin;
- 2) Public charter schools authorized by school districts (both instrumentality and non-instrumentality schools) scored significantly higher than traditional public schools on all Report Card student growth measures; and
- 3) Virtual charter schools authorized by the district (non-instrumentality only) received higher grades for student growth, especially for reading, than traditional public schools.



About Wisconsin Public Charter Schools

The charter sector in the Badger State is different from most other states because Wisconsin law separates public charter schools into three different categories: independent charter schools (also known as “2R” charters), instrumentality charter schools, and non-instrumentality charter schools. Independent charter schools are authorized by entities other than public school districts, such as the City of Milwaukee, UW-Milwaukee, MATC, and UW-Parkside, and thus more autonomous.

Instrumentality and non-instrumentality charters are authorized by school districts. There is one important difference between the two. Non-instrumentality charters can choose their own staff, teachers, and principals. However, by law, the staff of instrumentality charter schools are hired by the school district (LFB, 2015), and, therefore, instrumentality charters tend to be unionized.

While charter schools can be found statewide, the most autonomous ones cannot. **Unfortunately, out of the 244 charter schools in Wisconsin, the overwhelming majority – about 70% – are instrumentality charters. Most of these schools operate simply as extensions of the public school districts.** On the other hand, independent charters make up only 9% of all charter schools in Wisconsin. This is, perhaps, not surprising. State law limits independent charter schools outside of Milwaukee and, if a school district is the only authorizer, it is easy to see why they would choose to authorize instrumentalities over non-instrumentalities.

Table 1: Types of public charter schools in Wisconsin

Independent (2R)	23	9%
District Instrumentality	165	68%
District Non-instrumentality	22	9%
Instrumentality virtual	23	9%
Non-instrumentality virtual	11	5%

Outside of Milwaukee, 82% of all charter schools are instrumentality.

Alternatively, only one independent charter – out of the 23 independent charter schools total – can be found outside Milwaukee.

Source: WI DPI, <http://sms.dpi.wi.gov/charter-schools/current>

Moreover, there is a class of charter schools known as virtual charter schools. A virtual charter school is defined in Wis. Stats. § 115.001(16) as “a charter school under contract with a school board under s. 118.40 in which all or a portion of the instruction is provided through means of the Internet, and the pupils enrolled in and instructional staff employed by the school are geographically remote from each other.” Because of the uniqueness of online learning environments (as well as the uniqueness of the students they serve), we identify these schools in our analysis.

Many charter public charter schools are designed to serve a particular segment of the student population, especially disadvantaged students. For instance, 18% of all independent charters, 16% of non-instrumentality charters, and 11% of instrumentality charters serve at-risk students.¹ These schools are also based on a wide variety of educational models and offer a wide variety of curricula.

¹ Based on data from the Wisconsin DPI, <http://sms.dpi.wi.gov/charter-schools/current>.



Data and analytic methods

Using data from the Wisconsin Department of Public Instruction’s 2013-2014 Report Card for public schools – traditional and charter, we studied the following questions:

- 1) How do different types of charter schools compare to traditional public schools in student academic growth?
- 2) How do different types of charter schools compare to traditional public schools in closing the achievement gaps between students with disadvantaged backgrounds and students without disadvantaged backgrounds?

The State Report Card assigns numerical scores to each public school, including charters, for a set of priority areas.² The student growth measure takes into account student growth from one year to the next. It assesses each school on “students’ progress toward higher performance levels and any student declines below the Proficient level” (DPI, 2014, p. 24). The growth measure credits schools for each student that advances in proficiency and penalizes them for students who decline in proficiency.

Schools also receive a “closing gaps” score that evaluates each school “based on the rate of change in student achievement and graduation from one year to the next among key student groups” (DPI, 2014, p. 37). This ensures that traditionally underserved groups of students have equal access to quality education. These groups include minority students, students with disabilities, economically disadvantaged students, and English Language Learners.³

Both of these measures have advantages over “snapshot” measures such as WKCE proficiency scores because they credit performance by factoring in individual students’ achievement levels at the beginning of the period.

We use statistical models to estimate differences in student growth and closing achievement gaps between traditional public schools in Wisconsin and each group of public charter schools (independent, instrumentality, and non-instrumentality). We also disaggregate public charter schools into virtual instrumentality, virtual non-instrumentality, regular instrumentality, and regular non-instrumentality.⁴ The appendix contains a detailed explanation of the models.

² These priority areas are: student achievement, student growth, closing gaps, and on-track and post-secondary readiness.

³ The technical guide for the 2013-2014 Report Card includes details on how these measures are computed: <http://oea.dpi.wi.gov/sites/default/files/imce/oea/pdf/School%20Report%20Card%20Technical%20Guide%202014.pdf>

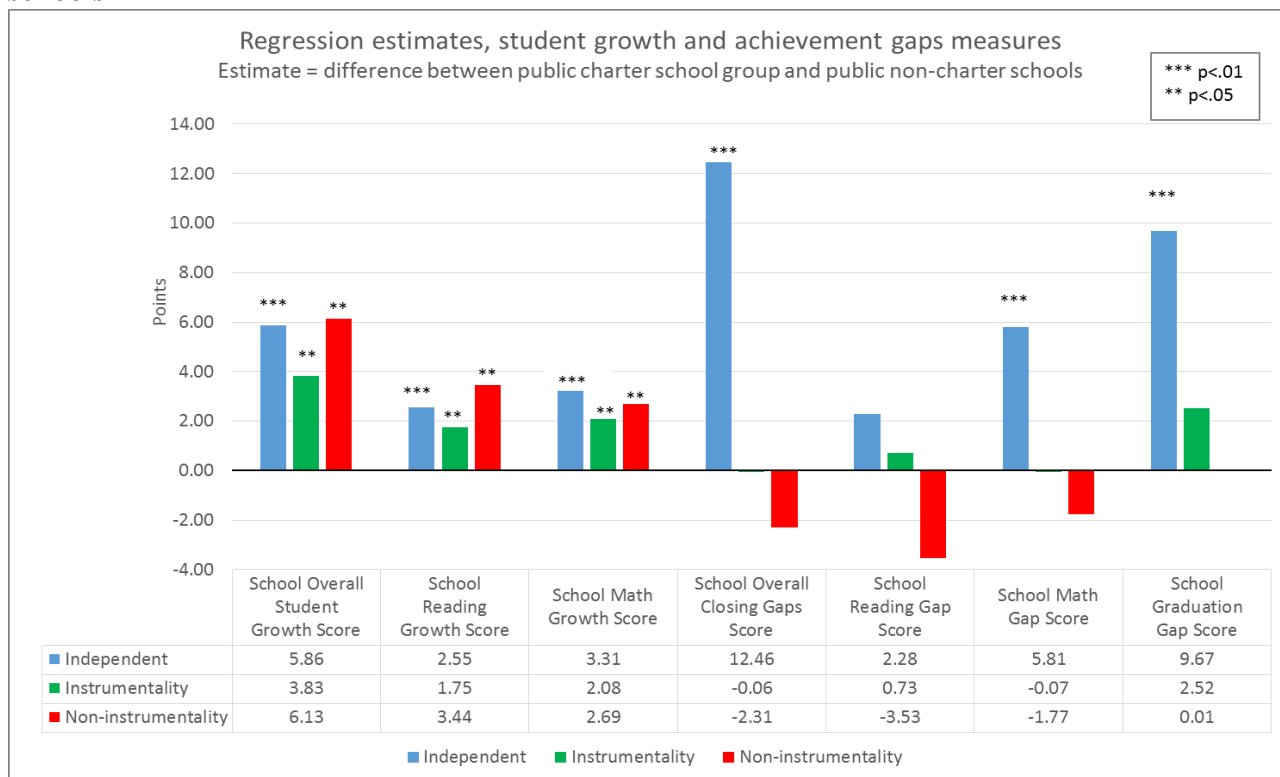
⁴ There are no independent virtual public charter schools.



Results

The main results of our analysis are presented in Figure 1 below.⁵ Each bar represents the *difference* between the average outcome scores for traditional public schools and each group of public charter schools: independent, instrumentality, and non-instrumentality. The bars represent these differences.

Figure 1: Regression estimates for comparing public charter schools and traditional public schools



1. Independent charter schools, on average, scored significantly higher on all growth and closing achievement gaps measures than traditional public schools throughout Wisconsin.

Independent charter schools, on average, scored 5.9 points higher on the School Report Card's student growth measures than the average score received by traditional public schools. Independent charter schools, on average, also scored 12.5 points higher on the overall gaps score than traditional public schools in Wisconsin. The score for closing graduation rate gaps for independent charter schools was 9.7 points higher than traditional public schools. All of these results are statistically significant at the 99% confidence level.

⁵ Detailed results are reported in Table 3 in the appendix.



2. Public charter schools authorized by school districts – both instrumentality and non-instrumentality schools – scored significantly higher than traditional public schools on all student growth measures.

Charter schools authorized by school districts also scored higher on the Report Card for student growth than traditional public schools. Non-instrumentality charters earned a score for student growth that was, on average, 6.1 points higher than traditional public schools. Instrumentality charters scored 3.8 points higher than traditional public schools. These results are statistically significant at the 95% confidence level.

However, we did not observe any differences between district charter schools and traditional public schools on achievement gap scores.

3. Virtual non-instrumentality charter schools demonstrate an advantage over traditional public schools on gap measures, though not nearly as large as the advantage demonstrated by independent charter schools.

We also disaggregated charter schools into virtual and “regular” charter schools (Figure 3, appendix). These results and the bar chart are reported in Table 4 in the appendix. Virtual non-instrumentality charter schools, on average, scored 0.7 to 1.6 points higher than traditional public schools on the closing gaps measures. These estimates are statistically significant, though somewhat smaller than results discussed above. This offers some evidence that these schools were more effective at closing achievement gaps than traditional public schools.

Discussion

The results seem to indicate that the more autonomous a public school is, the better it is at student growth and closing achievement gaps. This falls in-line with other studies on charter schools. The Center for Research on Education Outcomes (CREDO) at Stanford University recently released findings from a rigorous evaluation of the performance of urban charter schools across the United States (CREDO, 2015). According to its analysis, students in Milwaukee public charter schools, on average, experienced greater growth than a similar matched comparison group of students in traditional public schools.⁶ Public charter school students’ also experienced greater growth in every period studied (2007-2011). Furthermore, rigorous lottery-based studies have concluded that some of the best schools in the country are public charter schools (Betts & Tang, 2011); this group of elite charter schools includes KIPP and Harlem Children’s Zone (Tuttle et al., 2013; Dobbie & Fryer, 2009).

In addition, the MacIver Institute has shown that independent charter schools in Milwaukee scored higher on the 2013-2014 Report Card than MPS charters and higher than the state average.⁷ Charter

⁶ WILL summarized the results for Milwaukee, <http://www.will-law.org/Home/WILL-Blog/2015/03/19/CREDO-releases-results-of-new-study-on-urban-charters>.

⁷ MacIver (2014). “New Report Cards Show Most Milwaukee Schools Still Struggling,” by Christian D’Andrea, June 26, 2014. <http://www.maciverinstitute.com/2014/09/milwaukees-independent-charter-schools-lead-the-way-but-wisconsins-largest-district-is-worst-in-the-state-by-a-large-margin/>

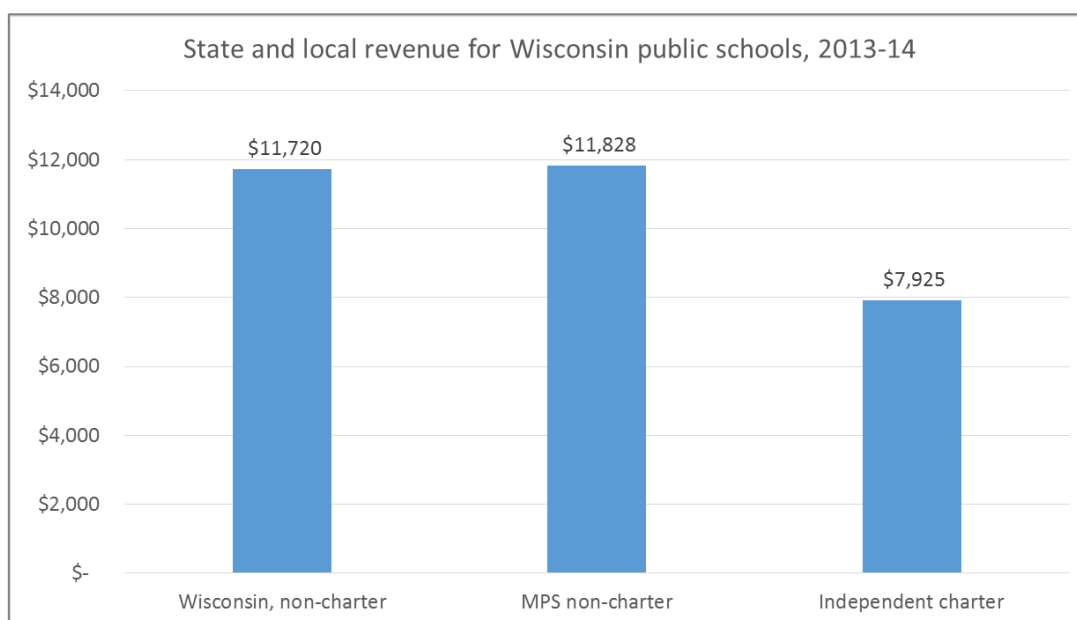


schools in Appleton Public School District scored higher than the district's traditional public schools in achievement, student growth, and closing achievement gaps.⁸

Why is this so? One reason may be that independent charters tend to be mission-driven and focus heavily on disadvantaged students. Greater autonomy and freedom from the district allows for innovative teaching methods. It may also be the case that independent charter schools and non-instrumentality charters, in reality, enjoy different degrees of autonomy.

These observations are all the more impressive in light of substantial – and unfair – funding disparities between public schools. Public school districts in Wisconsin, on average, received \$11,720 per pupil from state and local sources. Milwaukee Public Schools (MPS) received \$11,828 per pupil (Figure 2).⁹ Independent charter schools received \$7,925 per student during the same period.¹⁰ The gap between independent charter schools and the average state and local revenue for Wisconsin traditional public schools is \$3,795. This gap is likely higher after including Federal aid.

Figure 2: Historical per-pupil revenue between public schools, charter schools, and voucher schools, 2000-2013



Notes: Public school comparative revenue data obtained from DPI historical data, http://sfs.dpi.wi.gov/node/30372/sfs_cmprvcst; charter and private school per-pupil revenue obtained from the Legislative Fiscal Bureau; the charter amount for 2014-15 is \$8,075; 2014-15 revenue data for traditional public schools are not available.

⁸ MacIver (2014). "Appleton's School Report Cards Show How Valuable Charter Schools Can Be, Even Outside Milwaukee," by Christian D'Andrea, November 24, 2014. <http://www.maciverinstitute.com/2014/11/appletons-school-report-cards-show-how-valuable-charter-schools-can-be-even-outside-milwaukee/>

⁹ The per-pupil amounts for the state and MPS with Federal aid were \$12,705 and \$14,147, respectively.

¹⁰ The charter amount for 2014-15 is \$8,075; 2014-15 revenue data for traditional public schools are not available for this year. A recent WILL policy report explains funding discrepancies in more detail (WILL, 2015).



Conclusion

The implications of our study are clear: Wisconsin needs more public independent charter schools. Yet, state laws severely limit the number of charter authorizers to only a few and significantly restricts independent charter schools from expanding outside of Milwaukee. School districts do most of the authorization, and, consequently, the vast majority of “charter” schools are simply extensions of the traditional public school system.

This has all led Wisconsin’s charter school laws to be the subject of national derision. In their evaluation of each state’s charter school laws, the National Alliance for Public Charter Schools ranked Wisconsin 38 out of 43 states, saying “Wisconsin’s law needs improvement across the board¹¹” (Ziebarth, 2015). A separate report graded Wisconsin’s charter school laws an “F”, due in part to the low funding amount compared to traditional public schools (Maloney, 2014).

To revitalize the Wisconsin education system, we need policies that incentivize high-performing charter networks to establish schools within Wisconsin, provide equitable funding for all public schools and vouchers, and foster autonomy and innovation in education. **The unfortunate reality is that there is much more work to be done.**

¹¹ The report also stated: “Potential starting points include expanding authorizing options, beefing up the law in relation to the model law’s four quality control components (Components #6 through #9), increasing operational autonomy, and ensuring equitable operational funding and equitable access to capital funding and facilities.”



References

- Betts, J. R., and Tang, Y. E. (2011). The Effect of Charter Schools on Student Achievement: A Meta-Analysis of the Literature. *Center on Reinventing Public Education*, October 2011.
- Center for Research on Education Outcomes (2015). *Urban Charter School Study: Report on 41 Regions*, <http://urbancharters.stanford.edu/summary.php>.
- Dobbie, W., & Fryer Jr, R. G. (2009). Are high quality schools enough to close the achievement gap? Evidence from a social experiment in Harlem (No. w15473). *National Bureau of Economic Research*.
- Lueken, M. F., Esenberg, R., and Szafir, C. J. (2015). Diminishing Returns in K-12 Education: Has Wisconsin hit a wall where an additional dollar in education spending will not bring improvements in student outcomes? *Wisconsin Institute for Law & Liberty*, Policy Report, April 2, 2015.
- Maloney, Larry, (2014). Charter School Funding: Inequity Expands: Wisconsin. University of Arkansas.
- Tuttle, C. C., Gill, B., Gleason, P., Knechtel, V., Nichols-Barrer, I., and Resch, A. (2013). KIPP Middle Schools: Impacts on Achievement and Other Outcomes: Final Report. *Mathematica Policy Research, Inc.*, February 27, 2013.
- Wisconsin Department of Public Instruction (2014). *School Report Card: Technical Guide*, dated 8/20/2014.
- Wisconsin Legislative Fiscal Bureau (2015). *Charter Schools*, Informational Paper 27, January 2015.
- Ziebarth, T. (2015). Measuring up to the model: a ranking of state charter school laws, *National Alliance for Public Charter Schools*, Sixth Edition, January 2015.



Appendix

Statistical model

We start with an Ordinary Least Squares model:

$$Y_j = \alpha + \beta \text{Charter_type}_j + \delta X_j + \eta \text{Urbanicity}_j + \varepsilon_j \quad (1)$$

where Y_j denotes the outcome measure for school j ; **Charter_type** $_j$ is a vector of binary indicators that signify whether school j is an independent public charter school, a regular instrumentality public charter school, a regular non-instrumentality public charter school, an instrumentality virtual public charter school, or a non-instrumentality virtual public charter school; X_j is a vector of school characteristics that account for the makeup of its student body, grades served, and percentages of the student bodies that are English Language Learners, economically disadvantaged, and have disabilities; and **Urbanicity** $_j$ is a set of indicators for whether a school is located in an urban area, suburb, small town, or rural area. The outcomes we evaluate are overall student growth score, reading growth score, math growth score, overall closing gaps score, reading gap score, math gap score, and graduation gap score.

Results for (1) are reported in Table 5. These results are in line with our overall findings and suggest the following: independent charter schools scored significantly higher than traditional public schools on gaps measures, especially for math; non-instrumentality public charter schools scored significantly higher than traditional public schools on student growth measures, especially for reading; and virtual non-instrumentality schools scored significantly higher than traditional public schools on student growth in reading.

The problem with model (1) is that it doesn't account for likely intra-district correlation of the error term. To address this, we estimate the following equation:

$$Y_j = \alpha + \beta \text{Charter_type}_j + \theta_j + \varepsilon_j \quad (2)$$

where we include binary indicators for whether a school is in district j (θ_j),¹² and clustered standard errors are used for inference. To avoid “over-controlling,” we omit other control variables. Results for this model is reported in Table 3 and Table 4.

¹² Because independent charter schools have their own unique district identifiers, we assign Milwaukee independent charter schools to the MPS district and the Racine independent charter school to Racine Unified.



Table 3: Regression results for comparing public charter schools and traditional public schools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	School Overall Student Growth Score	School Reading Growth Score	School Math Growth Score	School Overall Closing Gaps Score	School Reading Gap Score	School Math Gap Score	School Graduation Gap Score
Independent charter school	5.857*** (0.460)	2.546*** (0.590)	3.311*** (0.152)	12.458*** (1.147)	2.284*** (0.397)	5.809*** (0.461)	9.674*** (1.554)
Instrumentality	3.830** (1.529)	1.754** (0.798)	2.077** (0.939)	-0.057 (2.357)	0.726 (1.957)	-0.067 (1.170)	2.520 (14.765)
Non-instrumentality	6.129** (2.385)	3.442** (1.615)	2.687** (1.192)	-2.309 (5.221)	-3.527 (2.706)	-1.768 (5.520)	0.007 (1.554)
Constant	62.750*** (0.000)	36.000*** (0.000)	26.750*** (0.000)	70.850*** (0.000)	26.050*** (0.000)	22.000*** (0.000)	45.600*** (0.000)
District indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,233	1,233	1,233	1,413	1,402	1,401	213
R-squared	0.667	0.559	0.661	0.363	0.583	0.571	0.896

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Data are from the WI DPI

Notes: The comparison group comprises traditional public schools; estimates for district indicators are not reported; standard errors are clustered at the district level



Table 4: Regression results for comparing public charter schools and traditional public schools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	School Overall Student Growth Score	School Reading Growth Score	School Math Growth Score	School Overall Closing Gaps Score	School Reading Gap Score	School Math Gap Score	School Graduation Gap Score
Independent charter school	5.919*** (0.448)	2.543*** (0.592)	3.376*** (0.172)	12.499*** (1.141)	2.303*** (0.403)	5.835*** (0.457)	9.772*** (0.814)
Virtual, instrumentality	-4.924 (5.087)	-1.443 (2.450)	-3.481 (2.907)	-16.201 (11.969)	-18.117*** (0.111)	-19.132*** (0.069)	0.600 (42.540)
Virtual, non-instrumentality	2.900 (2.301)	5.200 (3.533)	-2.300* (1.233)	1.600*** (0.000)	0.650*** (0.000)	0.950*** (0.000)	
Regular, instrumentality	4.701*** (1.502)	2.065*** (0.796)	2.636*** (0.943)	0.958 (2.486)	1.371 (2.103)	0.587 (1.318)	3.446 (7.733)
Regular, non-instrumentality	6.637** (2.822)	3.103* (1.578)	3.533*** (1.245)	-2.939 (5.770)	-4.220 (2.700)	-2.208 (6.244)	0.105 (0.814)
Constant	62.750*** (0.000)	36.000*** (0.000)	26.750*** (0.000)	70.850*** (0.000)	26.050*** (0.000)	22.000*** (0.000)	45.600*** (0.000)
District indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,465	1,465	1,465	1,615	1,595	1,594	231
R-squared	0.393	0.308	0.460	0.316	0.199	0.238	0.892

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Data are from the WI DPI

Notes: The comparison group comprises traditional public schools; estimates for district indicators are not reported; standard errors are clustered at the district level



Figure 3: Regression estimates for comparing traditional public schools with independent, virtual instrumentality, virtual non-instrumentality, regular instrumentality, and regular non-instrumentality charter schools

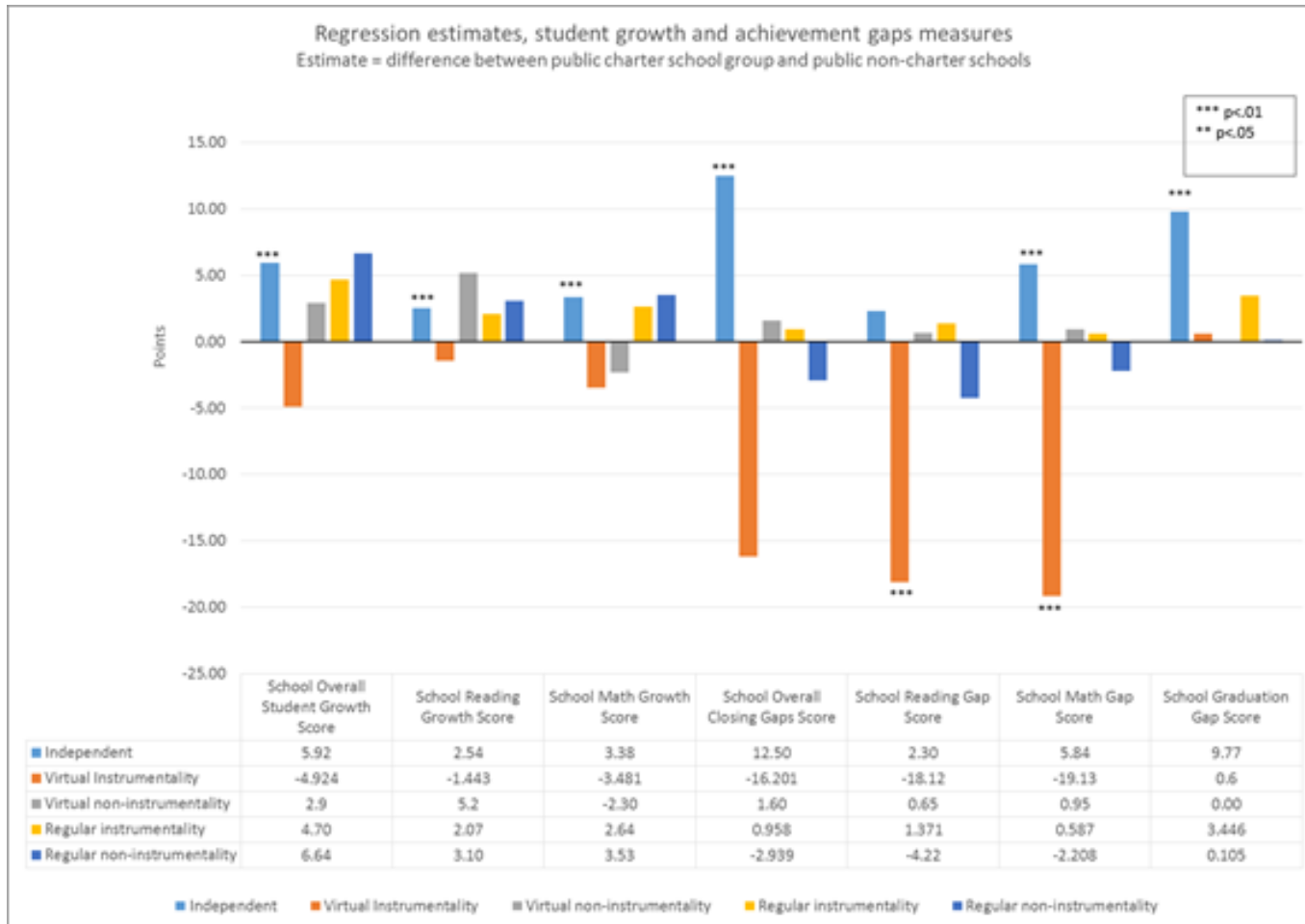




Table 5: Results for OLS models – comparing public charter schools and traditional public schools

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	School Overall Student Growth Score	School Reading Growth Score	School Math Growth Score	School Overall Closing Gaps Score	School Reading Gap Score	School Math Gap Score	School Graduation Gap Score
Independent	-0.181 (2.563)	0.117 (1.332)	-0.298 (1.740)	8.147** (3.542)	1.177 (2.073)	4.164* (2.244)	11.562 (8.461)
Virtual instrumentality	-4.861 (4.651)	-0.209 (2.417)	-4.652 (3.157)	-17.494** (7.747)	-10.001 (6.266)	-9.724 (6.782)	2.971 (7.627)
Virtual non-instrumentality	6.658 (7.768)	7.998** (4.036)	-1.340 (5.272)	-5.564 (11.189)	6.500 (6.591)	5.769 (7.134)	
Regular instrumentality	1.098 (1.154)	0.857 (0.600)	0.241 (0.783)	-1.744 (2.096)	-0.357 (1.226)	-0.234 (1.328)	1.848 (6.312)
Regular non-instrumentality	8.088** (3.701)	4.035** (1.923)	4.054 (2.512)	3.860 (6.214)	-1.156 (3.635)	2.444 (3.936)	1.721 (11.793)
town	0.493 (0.687)	0.199 (0.357)	0.295 (0.467)	2.035** (0.937)	1.039* (0.549)	1.732*** (0.595)	2.735 (2.462)
rural	0.033 (0.650)	0.197 (0.338)	-0.165 (0.441)	1.137 (0.893)	1.963*** (0.524)	2.434*** (0.568)	5.668** (2.378)
suburb	0.967 (0.698)	0.184 (0.363)	0.783* (0.474)	1.231 (0.965)	0.382 (0.565)	1.200* (0.612)	1.332 (2.659)
elementary_only	5.432** (2.528)	1.911 (1.314)	3.521** (1.716)	-2.210*** (0.771)	9.843*** (2.114)	8.947*** (2.289)	
middle_only	-5.587** (2.554)	-3.417** (1.327)	-2.170 (1.734)	-1.711* (0.907)	9.211*** (2.138)	10.008*** (2.314)	
high_school_only	-6.411** (2.767)	-2.363 (1.438)	-4.048** (1.878)		-2.755 (2.140)	-2.518 (2.317)	
pct_econ_disadv	-17.134*** (1.409)	-3.930*** (0.732)	-13.204*** (0.956)	-4.953** (1.975)	-0.789 (1.160)	-2.184* (1.256)	-3.614 (6.561)
pct_ell	10.655*** (2.823)	7.849*** (1.467)	2.806 (1.916)	-5.886 (4.021)	-1.323 (2.357)	-2.457 (2.585)	-14.465 (15.442)
pct_swid	-6.179 (5.360)	-3.110 (2.785)	-3.069 (3.638)	-12.057 (7.544)	-9.791** (4.434)	-5.371 (4.800)	15.816 (24.484)
elem_and_high_school				-1.300 (3.400)			
Constant	71.610*** (2.719)	34.739*** (1.413)	36.871*** (1.845)	71.080*** (1.486)	24.785*** (2.278)	23.559*** (2.466)	33.110*** (3.839)
District indicators	No	No	No	No	No	No	No
Observations	1,233	1,233	1,233	1,413	1,402	1,401	213
R-squared	0.395	0.304	0.364	0.056	0.383	0.327	0.062

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Data are from the WI DPI

Notes: The omitted categorical variables (i.e. comparison groups) in the analysis are: traditional public school indicator, urban indicator, and indicator for combined elementary/secondary school