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Charter School Performance in Rhode Island

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Abstract:

Current research on charter schools in the US has been inconclusive as to their performance outcomes. It is necessary to determine whether or not charter schools are effective in order to learn from the successes and failures of charter school approaches. This paper is an analysis on the existing literature surrounding charter school performance, as well as a study of charter school performance in Rhode Island. In this study, I examine the performance of 239 schools in RI to see if, when controlling for relevant factors, charter schools improve student outcomes. School-level data included the percent of students meeting proficiency criteria on standardized tests, attendance rates, chronic absenteeism rates, and student stability and mobility. I also take into account grade level, racial and ethnic diversity, percent of students eligible for free and reduced lunch, percent of students eligible for ESL (English as a second language) services, and percent of students eligible for Individualized Learning Programs. There were small (6-10 percentage point) differences in the percent proficient in charter schools versus non-charters. My data suggests that in Rhode Island, charter schools perform significantly better than public schools in 4th grade Math, Science, and ELA assessments, and they perform the same or slightly worse (but not significantly) in 8th grade Math, Science and ELA. More research in this area can contribute to a better understanding of charter school performance in Rhode Island, and potentially, nationwide.

Introduction:

In the last few decades, there has been considerable debate over whether or not charter schools are beneficial to the American education system. Charter schools are given government funding, but they have independence from the established educational system. Charter school supporters argue that increased autonomy and innovation in teaching, as well as competition between schools, increases the quality of education (Bifulco & Ladd, 2006; Buddin & Zimmer, 2005, Hoxby, 2001; Superfine & Woo, 2018). Opponents of charter schools argue that charter schools have not been proven to be more effective, are not properly regulated, and undermine the power of public school unions (Bettinger, 2005; Bifulco & Ladd, 2006; Clarke & Burt, 2018; Superfine & Woo, 2018). However, the research is mixed: some studies suggest charter schools perform better (Buddin & Zimmer, 2005; Hoxby, 2004; Walberg, 2007), some suggest they perform similarly (Clarke and Burt, 2018), and some suggest that they perform worse than traditional public schools (Bettinger, 2005; Bifulco & Ladd, 2006; Hassel, 2005).

In the following study, I examine the performance of 239 schools in RI to see if, when controlling for relevant factors, charter schools have better student outcomes than traditional public schools. In this sample, there are 164 elementary schools and 60 middle schools, 19 of which were charters. School level data includes the percent of students meeting proficiency criteria on standardized tests, attendance rates, chronic absenteeism rates, and student stability and mobility. I also take into account school level, racial and ethnic diversity, percent of students eligible for free and reduced lunch, percent of students eligible for ESL (English as a second language) services, and percent of students eligible for Individualized Learning Programs. From this analysis, I hope to determine the

extent to which charter schools are under or over performing compared to traditional public schools. I also seek to determine which charter schools, if any, are high performing given their student demographics.

Background on charter schools:

Charter schools originated from a model of freedom in education. Charter schools are given independence from the traditional structures of education that public schools are required to follow. The idea is that this independence allows for creative teachers to design more effective teaching methods (Buddin & Zimmer, 2005). Charter school supporters claim that charter schools will improve the quality of education, both through increased autonomy and increased competition between schools. “Some have framed charter school legislation as a type of reform that can strengthen the educational options available for all students by promoting competition across the entire educational marketplace” (Superfine & Woo, 2018, p. 10). Charter schools emerged in 1991 in Minnesota, and can now be found in 43 states across the US (Linick & Lubienski, 2013; Pelz, 2015; Silverman, 2012; Walberg, 2007). However, due to the extreme variation in autonomy, design, accountability, location, population, and level of access (transportation) to charter schools; research on charter schools is shrouded in ambiguity. Although most charter schools follow Common Core State Standards, every charter can, and does have different curriculum, teaching methods, school day structure, school year structure, budget, and management. The enormous variation in school design makes it difficult to investigate charter school performance.

In the debate about charter school funding, there is an argument to be made about collective bargaining. Many charter schools are not unionized, and so their teachers cannot bargain along with local public school teachers unions. Scholars argue that this reduces the amount of power that teachers unions have in collective bargaining with the state (Superfine & Woo, 2018). There is also debate about whether charter schools should be considered public or private. Some argue that charter schools should not take public funds, because they are not bound by public school regulations. “In *Ohio Congress of Parents & Teachers v. State Board of Education* (2006) and *League of Women Voters of the State of Washington v. The State of Washington* (2015), teacher unions argued that charter schools were not public and therefore were receiving public funding unconstitutionally” (p. 3, Superfine & Woo, 2018). However, the Ohio state supreme court disregarded this, and established that charter schools were public (allowing them to continue receiving funding). In 2008, Rhode Island approved two types of charter schools: in-district charter schools, and independent charter schools. While in-district charter schools “enjoyed some programmatic flexibility but existed fully under the district’s collective bargaining agreement with teachers”, ‘independent’ charter schools are “outside of district collective bargaining agreements but were nevertheless subject to the state’s tenure law, its prevailing wage statutes, and its teacher retirement system” (p. 25, Magee, 2014). In other words, although independent charter schools in RI gain financial benefits from the state, they are not involved in collective bargaining, which could weaken the teachers union. However, the effect of charter schools on teachers unions is irrelevant to the effect of charter schools on student performance.

There is still confusion in the research surrounding charters due to their highly irregular nature. “The challenge in understanding charter school outcomes lies in their individuality. These schools exercise substantial autonomy in curriculum, performance standards, disciplinary policies, and staffing decisions” (p. 331, Pelz, 2015). To solve this problem, scholars have come up with many different ways to classify charter schools. Buddin and Zimmer (2005) break up charter schools into four types: conversion, startup schools, classroom-based, and non-classroom based. Other scholars are concerned with the state policies governing charter schools, and the links of policies to the performance of charters. Using the Policy Diffusion Framework, Pelz explains how “policy regimes help explain the wide variation in state policies over charter schools” (p. 346, Pelz, 2015). He identified four such policy regimes: the Independence policy regime, the Support policy regime, the Accountability policy regime, and the Mandate policy regime. He found that, “although the independence regime and the accountability regime are largely associated with positive charter schools outcomes, these policy approaches are best applied in moderation” (p. 345, Pelz, 2015). This means that granting charter schools independence and holding them accountable has positive effects on school performance, but only to an extent. If charters are given too much independence, or are held to very strict accountability measures, the school outcomes can suffer. Furthermore, “the best achievement results for charter schools appear to be associated with a “mixed” regime approach that do not have all of the characteristics of a single regime type” (p. 346, Pelz, 2015). This means that combining the policies of independence and accountability in a single regime can be the most beneficial to charter schools.

In 1995, the Rhode Island General Assembly passed legislation that allowed for the creation of charter schools. According to the Rhode Island Department of Education (RIDE), charter schools are “public schools authorized by the State of Rhode Island to operate independently from many state and local district rules and regulations” (RIDE, 2019). There are three types of charter schools in Rhode Island: District charter schools, Independent Charter Schools, and Mayoral academies. District charter schools are created by existing public schools or school districts, whereas Independent charter schools are created by nonprofit organizations, colleges, or universities. Mayoral academies are highly autonomous charter schools that are administered by mayor-led boards (Magee, 2014; RIDE, 2019). In 2007, RI opened its first mayoral academy, Blackstone Valley Prep, and in 2012, “the scores of 7th graders at Blackstone Valley Prep... far exceeded those of students in the sending districts” (Magee, 2014, p. 23). Rhode Island has institutions that serve to regulate and monitor charter schools. “Rhode Island General Law 16-77-5.1(b) designates the Council on Elementary and Secondary Education (the Council) as the authorizer for charter schools” (RIDE, 2019). The Rhode Island Department of Education “is delegated with the authority and responsibility to manage a comprehensive system of charter school accountability, review, and monitoring, and system management” (RIDE, 2019). The Council and the Department of Education both work to balance the autonomy of charter schools with the accountability measures required by the state. Furthermore, all charter schools are subject to review by the Commissioner of Elementary and Secondary Education (Rhode Island Charter School Regulations, 2018). Rhode Island policy has been fairly open to both start-up and conversion charter schools. However, Governor Raimondo passed a bill in 2016 that

restricts new charter schools from opening, and encourages the expansion of current charters (Borg, 2016). While Raimondo supports charter schools, she said, “This bill represents a reasonable compromise that addresses some of the concerns raised by school districts and also makes sure we can maintain high-quality charters” (Borg, 2016). This policy is backed up by the existing literature, as discussed later in this paper.

Student Achievement in Charters:

Student achievement in charter schools has been an extensively researched issue with mixed results. Some researchers find that charter schools are performing better than their public school counterparts, while others find the opposite to be true. Buddin and Zimmer (2005) report on a case study in Arizona in which scholars (Solmon, L., Paark, K., & Garcia, D., 2001) tracked student achievement in charter schools. They found that, “students spending two to three years in charter schools out-performed conventional public school students” (Buddin & Zimmer, 2005, p. 355). They also found that students do poorly in their first year, but performance improves the longer students stay in charter schools. Clarke & Burt (2018) found the same in their study of Midwestern urban school districts. “The longer a student stayed in a charter school after transferring from a contiguous traditional school, the better he or she performed in mathematics than his or her corresponding counterparts” (p. 17, Clarke & Burt, 2018). If students perform better the longer they stay in the same charter school, then this suggests that it is better for a state to expand existing charter schools than to invest in opening new ones. Grønberg and Jansen (2001) examined test scores of Texas students on the Texas Assessment of Academic Skills (TAAS) between 1997 and 2000. “The authors find that charter schools

that focus on at-risk students provided slightly more “value added” than conventional public schools, while non-at-risk charters provided slightly less value added than conventional schools” (Buddin & Zimmer, 2005, p. 355). Some scholars theorize that public schools may compete with charter schools in the same district (Bettinger, 2005; Hoxby, 2001). Studies from Milwaukee, Michigan, and Arizona charter schools provide evidence that charter schools improve both public and charter school productivity. Hoxby argues that school choice benefits the productivity of all schools, and that these “productivity effects” can “potentially relieve tensions generated by the allocation effects of choice” (p. 338, Hoxby, 2001). She found that “charter competition induced public schools to improve their productivity and achievement” (p. 336, Hoxby, 2001). However, other scholars believe that charter schools have a limited impact on public schools (Linick & Lubienski, 2013), and that other factors, such as size of the district or state and local policy, are more significant.

There is evidence from North Carolina that charter schools do not outperform public schools. Although the authors, Bifulco and Ladd, hypothesize that charter schools might improve academic achievement by “providing more effective learning environments”, “providing alternative educational environments and programs”, and providing “competition from charter schools for students and funding induced traditional public schools to become more productive” (Bifulco & Ladd, 2006, p. 51), the study suggests otherwise. The authors “find that students make considerably smaller achievement gains in charter schools than they would have in public schools” (Bifulco & Ladd, 2006, p. 50). The study used individual-level data, and the authors were able to track students over time in the North Carolina school system. “Charter school students

exhibit gains nearly 0.10 standard deviations smaller in reading and 0.16 standard deviations smaller in math, on average, than the gains those same students had when they were enrolled in traditional public schools” (Bifulco & Ladd, 2006, p. 68-69). Another researcher, Bettinger (2005), conducted a case study in Michigan, and used school-level data from standardized tests to compare changes in test scores between charter and public school students. He found that “test scores of charter school students do not improve, and may actually decline, relative to those of public school students” (p. 133, Bettinger, 2005). However, he attributes this to “the fact that Michigan charter schools, on average, attract students who are performing much worse on math and reading exams than the neighboring public schools” (p. 136, Bettinger, 2005). It is therefore difficult to discern the true effects of charter schools on student performance.

In fact, extensive reviews of existing charter school research show mixed results. In Walberg’s book, *School choice: The findings* (2007), he cites Hoxby (2004), who found positive results for charters. “Alaska’s charter students were about 20 percent more likely to be proficient in reading and math, Arizona’s about 10 percent more likely to be proficient in both disciplines, and California’s 9 percent more likely to be proficient in reading, and 5 percent more likely to be proficient in math (p. 21, Walberg, 2007). However, he also cites Hassel’s (2005) review of charter school studies that suggest the opposite results. Clarke and Burt (2018) found that, “only eight studies reviewed in an extensive literature search showed positive results for charter schools. Twenty-three studies concluded that charter school students performed worse than their traditional public school counterparts. Seventeen studies concluded either mixed or negligible

results” (p. 6, Clarke & Burt, 2018). It may be necessary to conclude that charter schools have little, if any, impact on student achievement.

Student achievement may not be influenced by whether or not a school is a charter, but rather by whether or not the school has resources, or whether or not the students themselves have resources or support at home. High rates of low-income and minority students in a school are correlated with low student achievement (Caldas, 1993; Clarke & Burt, 2018). In an analysis of charter schools in New York state, Silverman (2012) compared data across charter schools and public schools, analyzing student characteristics and student performance on standardized tests. Silverman found evidence that the charter schools he was researching were struggling not because they were charter schools, but because they were segregated and impoverished. Outside forces, such as poverty and segregation, can play a huge role in affecting school performance, and “creative pedagogy can’t override more fundamental problems” (Jacobs, 2012). Although charter schools may have more autonomy and innovative practices than public schools, they may not be able to overcome harsh conditions. “Socioeconomic status and minority status [are] the strongest predictors of school achievement” (Caldas, 1993). So while other factors may come into play, they may not be significant. However, charter schools, on average, have more Black and Hispanic students than white students (Clarke & Burt, 2018; National Center for Educational Statistics, 2011). Therefore, charters play an important role in providing support to children in need.

Some argue that there is evidence to suggest there is selection bias in the charter school system. In other words, students who attend charter schools are different from those who do not. Students who live closer to charter schools are more likely to attend,

whereas students who live farther away may not have access to reliable transportation. Chingos, & Blagg (2017) review transportation in relation to education, and they link the desire for higher quality education with the desire for equal access. They find that, “the number of students attending charter schools has also increased, demonstrating that more students may be opting for other public schools beyond their traditional neighborhood school” (Chingos & Blagg, 2017). This trend indicates that families are eager to break out of their own school districts in search of a better school. While “proponents of school choice have promoted charter schools as a way to provide improved options for low-income minority families “stuck” in underperforming schools” (Hamlin, 2018, p. 52), the reality is that transportation presents a huge barrier to education. Although charter schools may accept students from different districts, students do not have equal access to charter schools.

Another aspect of selection bias is parent involvement. Unfortunately, socioeconomic status and parent involvement go hand-in-hand, as low-income families may not have the time or money to be as involved in student’s education as a high-income family. Hamlin explains that “families who seek out a school of choice may be more academically committed, have broader social networks, and possess greater access to resources than families who do not engage in school choice” (Hamlin, 2018, p. 53). This means that the performance outcomes of charters may be skewed due to the difference between school choosers and non-choosers. There is a wide range of benefits that come with higher socioeconomic status. Hamlin conducted interviews with parents and teachers in both charter and public schools, and found, “school choosers differed from nonchoosers in access to transportation, experience, social and professional

networks, orientation toward choice, parental involvement, and home stability” (Hamlin, 2018, p. 63). However, a charter school in Chicago, the Woodlawn Secondary School, has been beneficial for its students who live in low-income communities. The school proved to be successful, as “98 percent of its graduates, most of whom are African American, were admitted to four-year colleges” (p. 1, Haederle, 2011). The majority of Woodlawn students come from low-income families, and the author uses their success as evidence against criticism that charter schools “cherry-pick the best students” (p. 2, Haederle, 2011). This proves that selection bias is not always a factor in determining the performance of charter schools.

From examining the literature, several best practices for charter schools are evident. The best achievement results for charter schools appear to be associated with a “mixed” regime approach that do not have all of the characteristics of a single regime type” (Pelz, 2015, p. 346). Policies that allow for independence, but still uphold accountability in charter schools, will foster the best outcomes. High attendance and low turnover rates are also important factors in student achievement, as the longer students spend in a school, the better they do (Buddin & Zimmer, 2005). Furthermore, in order to gain the most benefits from charter schools, there needs to be increased access to charters (Hamlin, 2018). Reliable access to transportation, better social networks, and high levels of parental involvement are all associated with high student performance.

Methods:

The research questions motivating this study are:

Research question 1: Are Rhode Island charter schools performing better or worse than public schools?

Research question 2: If charter schools do perform better on average, which charter schools in RI are outperforming their public school counterparts?

Research question 3: Are there best practices and traits of high performing charter schools?

In this project, I examine whether or not charter schools improve student outcomes, while controlling for relevant factors. This study is an analysis of student performance in 19 charter and 205 public schools in RI, and includes all elementary and middle schools that contain the grade levels 4 through 8¹. All student data was collected from the RI Department of Education's Infoworks website. This model is cross-sectional, rather than longitudinal, meaning that it only contains data from a single point in time - in this case, the 2015-2016 school year. I use a linear regression model, in which I explore the relationship between charter schools and student performance. Student performance is measured by the percentage of students meeting proficiency criteria on PARCC and NECAP assessments for 4th and 8th grades. This was either categorized as the percent of students who were proficient in the Science NECAP assessment, or the percent of students who met or exceeded expectations in Math and ELA (English Language Arts) PARCC assessment scores. The charter school variable was input as charter schools equaling 1, and non-charters equaling 0. Therefore, a positive regression coefficient indicates a positive relationship between charters and proficiency rates. I controlled for multiple variables that can affect student performance, including grade levels offered by the school, attendance rates, chronic absenteeism rates, stability rates, mobility rates,

¹ Due to the information available on the RIDE Infoworks website.

racial and ethnic diversity, the percent of students eligible for Free and Reduced Lunch (FRL), the percent of students eligible for Individualized Education Programs (IEP), and the percent of students with English as a second language (ESL). The sample size varies throughout the study, as certain schools were missing data or had insufficient data for the 2015 - 2016 school year. Mean replacement was not used in the case of missing data.²

It is important to note that the district or location of a school is not equivalent to the school's enrolling communities. A charter school may accept students only from its own district, or surrounding districts, or even statewide. This has some effect on the funding a school will receive, due to the way funding follows children who attend charters in RI (Wong, 2013). I chose to focus on grades four and eight based off the data available. NECAP assessments were changed in 2015 - 2016 and schools no longer administered Math and Reading NECAP tests, but kept science. However, PARCC assessments did not become available until 2015 - 2016, so the overlapping assessments provided three subjects.

The Stability Index is defined as “the proportion of the total student enrollment who stayed in the same school throughout the school year. The rate is calculated by taking the number of students who are members of a school for 170 days or more and dividing by the total number of students enrolled in the school during the year” (RIDE Infoworks, 2019). The Mobility Index is defined as “the rate of student turnover, or the percentage of students who moved into or out of the school during the school year. The

² These excluded schools include: Achievement First Illuminar Mayoral Academy, Achievement First Providence Mayoral Academy - Middle, Aquidneck School, Austin T. Levy School, Broad Rock Middle School, Capt. G. Harold Hunt School, Charles Fortes Elementary School, Early Childhood Center, Frenchtown School, Governor Aram J. Pothier School, Hope Highlands Middle School, Howard Hathaway School, Maisie E. Quinn Elementary School, Margaret I. Robertson School, Meadowbrook Farms School, Melville Elementary School, Primrose Hill School, RISE Prep Mayoral Academy, RI School for the Deaf, SouthSide Elementary Charter School, The RYSE school, Warwick Veterans Jr. High School.

rate is calculated by taking the total number of students entering or leaving a school between October 1st and June 1st divided by the average daily membership in the school during the school year” (RIDE Infoworks, 2019). Stability and mobility rates may be indicators of school or student achievement.³

Results:

In a bivariate analysis, charter schools were more likely to have higher average rates of proficiency than public schools in fourth grade, but not in eighth grade (see Table 1). Charter schools tended to have larger means in elementary Science, Math, and English Language Arts by about 8-10 percentage points. However, in middle schools, charter schools tended to have lower means, ranging from 2-12 percentage points.

Table 1: Summary Statistics for Charter and Non-Charter Schools

		N	Mean	Std. Deviation
4 th Grade Science NECAP	Non-Charter	154	0.43	0.23
	Charter	9	0.51	0.28
	Total	163	0.43	0.23
8 th Grade Science NECAP	Non-Charter	51	0.21	0.15
	Charter	8	0.09	0.09
	Total	59	0.19	0.15
4 th Grade ELA PARCC	Non-Charter	154	0.42	0.18
	Charter	10	0.53	0.26
	Total	164	0.43	0.19
8 th Grade ELA PARCC	Non-Charter	51	0.42	0.22
	Charter	8	0.38	0.20
	Total	59	0.42	0.21
4 th Grade Math PARCC	Non-Charter	154	0.37	0.19
	Charter	10	0.42	0.26
	Total	164	0.37	0.19

³ “Note: The stability and mobility indicators measure different phenomena and are not inverses of one another. The mobility index measures the rate of flow through the non-stable portion of the student body. Together, the two indicators describe the degree of turnover in the school and its potentially disruptive effect on the classroom environment.” (<http://infoworks.ride.ri.gov/understanding-data/dictionary#category--student-indicators>)

8 th Grade Math PARCC	Non-Charter	50	0.18	0.16
	Charter	6	0.16	0.20
	Total	56	0.18	0.16

In Table 2, I present correlations between different variables and school performance in PARCC and NECAP assessments. Charter schools were positively correlated with student achievement in fourth grade Science, Math, and ELA tests, but the coefficient is only significant for fourth grade ELA (see Table 2). Conversely, charter schools were negatively correlated with student achievement in eighth grade Science, Math, and ELA tests, but the coefficient is only significant in eighth grade Science. The strongest correlation between variables was the percent of students eligible for Free and Reduced Lunch programs, which is used as an indicator of socioeconomic status. The percent of students eligible for FRL was negatively correlated with proficiency from about 68 to 86 percent. Other variables such as Attendance, Chronic Absenteeism, Mobility, Stability, Percent eligible for ESL, Percent African American, Percent Hispanic, Percent Multiracial, and Percent White, were all significant across the board, but had lower correlations with proficiency than the Percent of students eligible for FRL. The percent of students eligible for Individualized Learning Programs was only significant in eighth grade, with correlations ranging from 36 to 40 percent.

Table 2: Correlational Relationships between Variables

	4 th Grade Science	4 th Grade ELA	4 th Grade Math	8 th Grade Science	8 th Grade ELA	8 th Grade Math
Charter/Non Charter	0.08 (0.163)	0.13* (0.047)	0.07 (0.18)	-0.27* (0.018)	-0.08 (0.275)	-0.04 (0.394)
Attendance Rate	0.56**	0.55**	0.50**	0.51**	0.62**	0.50**

	(0)	(0)	(0)	(0)	(0)	(0)
Chronic Absenteeism Rates	-0.57**	-0.56**	-0.51**	-0.58**	-0.67**	-0.54**
Stability Rate	(0)	(0)	(0)	(0)	(0)	(0)
Mobility Rate	0.56**	0.55**	0.48**	0.58**	0.70**	0.55**
	(0)	(0)	(0)	(0)	(0)	(0)
Percent eligible for FRL	-0.57**	-0.57**	-0.49**	-0.58**	-0.71**	-0.55**
	(0)	(0)	(0)	(0)	(0)	(0)
Percent eligible for ESL	-0.80**	-0.73**	-0.68**	-0.86**	-0.82**	-0.69**
	(0)	(0)	(0)	(0)	(0)	(0)
Percent eligible for IEP	-0.59**	-0.52**	-0.47**	-0.57**	-0.64**	-0.37**
	(0)	(0)	(0)	(0)	(0)	(0.003)
Percent African American	-0.13	-0.10	-0.11	-0.40**	-0.40**	-0.36**
	(0.056)	(0.094)	(0.08)	(0.001)	(0.001)	(0.003)
Percent Asian	-0.60*	-0.57**	-0.48**	-0.63**	-0.63**	-0.56**
	(0)	(0)	(0)	(0)	(0)	(0)
Percent Hispanic	-0.17**	-0.17*	-0.16*	-0.23	-0.31**	-0.26*
	(0.014)	(0.016)	(0.024)	*(0.037)	(0.008)	(0.025)
Percent Multiracial	-0.65**	-0.60**	-0.55**	-0.68**	-0.65**	-0.47**
	(0)	(0)	(0)	(0)	(0)	(0)
Percent Native American	-0.20**	-0.20**	-0.18*	-0.36**	-0.42**	-0.42**
	(0.005)	(0.006)	(0.012)	(0.002)	(0)	(0.001)
Percent White	-0.12	-0.19**	-0.16*	-0.21	-0.28*	-0.23*
	(0.063)	(0.009)	(0.021)	(0.057)	(0.016)	(0.047)
	0.702**	0.65**	0.59**	0.73**	0.71**	0.55**
	(0)	(0)	(0)	(0)	(0)	(0)

Note: Significance (p-values) in parentheses; * $p < 0.05$, ** $p < 0.01$

In a series of linear regression analyses, I examine the effect of charter schools on the percentage of students meeting proficiency criteria on standardized tests. The charter school variable was a positive and significant predictor of the percent proficient in fourth grade Science NECAP, ELA, and Math PAARC tests (see Table 3). The standardized coefficients in fourth grade were 0.202 in Science, 0.247 in ELA, and 0.190 in Math. Charter schools were not a significant predictor of eighth grade proficiency. Across all standardized tests, the percent of students eligible for Free and Reduced Lunch was a significant and negative predictor. In fact, it was the strongest predictor of proficiency rates in both fourth and eighth grades, with coefficients ranging from 0.427 to 0.734.

These regression analyses for proficiency rates revealed that R-squared values ranged from .56 to .84, meaning that the variables accounted for between 54% and 84% of the variance in outcomes.

Table 3: Coefficients and Significance for 4th & 8th grade Science, Math, and English Language Arts, PARCC and NECAP scores (2015-16).

	4 th Science	8 th Science	4 th ELA	8 th ELA	4 th Math	8 th Math
Charter School	0.202** (0.057)	-0.118 (0.060)	0.247** (0.0471)	-0.065 (0.165)	0.190* (0.092)	0.137 (0.228)
Attendance Rates	4.462 (3.309)	0.876 (2.833)	3.984 (2.586)	0.364 (4.180)	3.295 (2.805)	2.536 (4.948)
Chronic Absenteeism Rates	0.643 (0.629)	-0.0004 (0.679)	0.473 (0.475)	-0.191 (0.941)	0.346 (0.542)	0.492 (1.107)
Stability Rates	-3.082 (2.457)	-4.564 (2.779)	-3.107 (2.002)	-0.037 (4.675)	-4.222* (1.990)	-4.928 (3.299)
Mobility Rates	-2.662 (2.297)	-4.758 (2.542)	-2.765 (1.835)	-1.037 (4.216)	-3.769* (1.835)	-4.594 (3.084)
Percent eligible for Free and Reduced Lunch	-0.734** (0.105)	-0.662** (0.097)	-0.427** (0.098)	-0.640** (0.162)	-0.543** (0.102)	-0.528** (0.164)
Percent eligible for English Language Services	-0.185 (0.176)	0.202 (0.214)	0.152 (0.154)	-0.383 (0.445)	0.124 (0.224)	1.179** (0.428)
Percent eligible for Individualized Learning Programs	-0.525* (0.241)	-0.123 (0.233)	-0.196 (0.210)	0.195 (0.357)	-0.247 (0.265)	-0.395 (0.395)
Percent African American	-0.180	0.242	-0.256	0.142	0.144	-0.013

	(0.212)	(0.154)	(0.166)	(0.257)	(0.178)	(0.235)
Percent Asian	0.048 (0.307)	0.162 (0.427)	0.124 (0.308)	0.353 (0.676)	0.118 (0.384)	-0.070 (0.697)
Percent Hispanic	0.084 (0.128)	0.277** (0.100)	-0.134 (0.111)	0.302 (0.202)	-0.046 (0.146)	-0.178 (0.233)
Percent Multiracial	0.713 (0.451)	0.263 (0.503)	0.622 (0.423)	-0.447 (0.760)	0.577 (0.444)	-0.310 (0.896)
Percent Native American	3.263* (1.304)	1.415 (1.336)	-0.030 (1.017)	0.441 (2.319)	0.612 (1.169)	-1.847 (2.397)
Number of grade levels in the School	-0.019* (0.010)	-0.004 (0.005)	-0.017 (0.009)	0.001 (0.009)	-0.025** (0.009)	0.001 (0.015)
Constant	-0.358 (4.786)	4.206 (5.120)	-0.012 (3.469)	0.445 (7.806)	1.772 (3.497)	2.918 (6.806)
<i>N</i>	162	59	163	59	163	56
<i>R-Squared</i>	0.73	0.84	0.64	0.80	0.56	0.66

Note: Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$

Discussion and Conclusions:

My data suggests that in Rhode Island, charter schools perform significantly better than public schools in 4th grade Math, Science, and ELA assessments, and they perform slightly worse (but not significantly) in 8th grade. Charter schools were found to have a positive correlation with student proficiency in fourth grade Science, Math, and ELA assessments, but a negative correlation in eighth grade. The variable with the strongest correlation with school performance was the Percent of students eligible for Free and Reduced Lunch. This variable was also the strongest negative predictor of student performance in all standardized assessments. Controlling for school and student population factors, charter schools were a positive and significant predictor of

performance in in fourth grade Science, Math, and ELA assessments. On the whole, charter schools perform slightly better than public schools in fourth grade, and they perform slightly worse in eighth grade. This study indicates that charter schools are more successful than public schools at addressing student performance in elementary schools rather than middle schools. However, there were limitations to this study, including a small sample size (of charter schools in particular).

The fact that the percent eligible for FRL was a much stronger predictor than the charter school variable suggests that it is more important in analysis of education policy. Socio-economic status is a more significant predictor of student outcomes than whether a school is a charter school or not. In order to improve student performance outcomes, more research should be done to address poverty levels in schools, and less research should focus on charter schools.

Figure 1: Performance of charter schools in RI

Are Charter Schools Under or Overperforming?		
School	Performance	By How Much?
Highlander Charter School	Underperforming	20-30 percentage points
Times2 Academy	Mixed (Mostly Under)	5-7 percentage points
International Charter School	Mixed (Mostly Under)	10-21 percentage points
Paul Cuffee Charter School	Mixed	1-8 percentage points
Blackstone Valley Prep Mayoral Academy - ES2	Mixed (Mostly Over)	3-10 percentage points
The Compass School	Mixed (Mostly Over)	10-30 percentage points
The Learning Community Charter School	Overperforming	3-16 percentage points
Achievement First Providence Mayoral Academy - Elementary	Overperforming	12-18 percentage points
Blackstone Valley Prep Mayoral Academy - ES1	Overperforming	13-16 percentage points
Kingston Hill Academy	Overperforming	2-25 percentage points

Note: Color reflects performance (Red = under, Green = over, shades are mixed).

In Figure 1, I used predictions to assess the apparent “success” of charter schools. Based on my model, and controlling for other factors, I compared the predicted rates for each individual charter school to their actual score. While several schools perform better than predicted, given their student population, others performed worse. Schools that performed above their predicted rate are considered over-performing, while those that performed below their predicted rate are considered underperforming. The “by how much” column dictates the extent to which a school was performing below or above its predicted rate. For example, the Highlander school was the only school that performed under its predicted rate in all PARCC and NECAP assessments. This school was predicted to have a proficiency level of about 40% in Science and ELA and 27% in Math, but instead had proficiency rates of 11% in Science, 11% in ELA, and 0% in Math. The Learning Community Charter school, Achievement First Mayoral Academy Elementary school, Blackstone Valley Prep Mayoral Academy Elementary School 1, and Kingston Hill Academy were all over-performing their predicted rates in Science, Math, and ELA assessments. Although this chart identifies the top performing charter schools in RI, it does not account for variance in the schools’ education models. For example, some charter schools may have longer hours, more involved parents, or require more test prep than traditional public schools.

In order to learn from these over performing charter schools, it is necessary to find out what makes them unique. For example, the Blackstone Academy middle schools have longer hours in their school day. They report that they open at 7:40am, and close at 4:05pm (Sorensen, 2018). All these extra hours add up to more days of school, meaning students spend more time learning than they would in public schools that follow the state-

mandated calendar. This could explain increased test scores for students attending these charter schools. Another example is Kingston Hill Academy. Although it accepts students from all districts statewide, it is located in South Kingstown, and therefore restricts access to those who either live locally or to those who can afford transportation. More research needs to be done to determine what traits and practices successful charter schools in RI use. If these practices can be isolated, they can be used to better inform education policy.

Overall my analysis provides some insight into charter schools in Rhode Island, but there were many drawbacks as well. This study controls for multiple factors that can affect student achievement levels, and these factors accounted for a large percent of the variance. However, it is difficult to make definitive conclusions based off of a study from a single state, a single school year, and with such limited school and student data. Furthermore, my data set had many holes, as there was often missing or insufficient data for certain variables, and I did not have access to individual-level or school-level data. This makes it difficult to determine whether a school's performance was dictated by being a charter, or because of other factors.

Further research in Rhode Island charter schools should examine individual level data, and conduct a longitudinal study of individual performance over time. It is important to track students both across grade level, and across schools to determine the factors affecting their performance. For example, a student's growth rate may slow when they initially enter a charter school, but may increase the longer they stay in the charter. Studying students who move in and out of charter schools can provide much more useful information about the nature of student learning. It would also be beneficial to track all

students who applied for charter schools, including both students who got in, and students who did not. This can tell us more about how selection bias comes into play, and whether or not school choosers have any inherent advantages over non-school choosers.

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