School Organizational Effectiveness and Chronic Absenteeism: Implications for Accountability

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Abstract

Chronic absenteeism in K-12 schools is strongly associated with critical educational outcomes such as student achievement and graduation. Yet, the causes of chronic absenteeism are complex, with environmental, family/individual, and school factors all affecting the likelihood of a student attending school regularly. This exploratory study examines whether school organizational effectiveness has the potential to moderate external influences on chronic absenteeism. Using school-level scores from the 5Essentials surveys, we find that, in traditional public schools, schools that are organized for effectiveness have lower rates of chronic absenteeism, while controlling for student demographics and grade level. In particular, schools with higher scores for "involved families" have lower chronic absenteeism. While charter schools in Detroit have significantly lower rates of chronic absenteeism than traditional public schools, we did not find an association between organizational effectiveness and chronic absenteeism in charter schools. This suggests that student sorting by school type may produce variation in chronic absenteeism rates that is not moderated by school actions. These findings have important implications for practice and policy, as educators seek to reduce chronic absenteeism in response to pressures from high-stakes accountability systems.

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Accountability

A growing national interest in chronic absenteeism was solidified in federal law with the 2015 Every Student Succeeds Act (ESSA), which required that states report on chronic absenteeism and allowed states to use it as a non-academic indicator of school quality in their school accountability systems. Nearly all U.S. states have proposed using chronic absenteeism as a supplementary measure of school success in their new accountability plans (Jordan & Miller, 2017). Chronic absenteeism, defined by Attendance Works (2018) as missing 10% or more days of school for any reason, is a potentially useful measure of school performance, as it has a documented relationship with student achievement and can be improved with school-based decisions. However, to the extent that chronic absenteeism is related to factors outside of schools' control, accountability systems may inappropriately assign schools scores, sanctions, and resources that do not improve student outcomes. In addition, if certain types of schools have significantly different chronic absenteeism rates, despite similar student populations and school-based characteristics, accountability systems based on that measure may become delegitimized, as has occurred to test-based accountability systems under No Child Left Behind. The objective of this paper is to identify the association between school-level characteristics and chronic absenteeism, to inform responses to accountability pressures that use this new measure.

While student attendance has long been shown to be significantly related to student outcomes, recent research has examined the powerful and cumulative negative effect of chronic absenteeism on student achievement and graduation rates (Gershenson, Jacknowitz, & Brannegan, 2017; Gottfried, 2014; London, Sanchez, & Castrechini, 2016; Romero & Lee, 2007). A 2007 study conducted by the University of Chicago found that, among Chicago Public

High School 9th graders, attendance was the single most powerful predictor of graduation, more so than test scores or family background. Attendance was eight times more predictive of ninth grade failure than were eighth grade test scores (Allensworth & Easton, 2007). Absenteeism produces negative outcomes throughout the school system. Classroom teachers must take time away from the class to remediate absent students. Schools typically rely on funding based on full-time student enrollment which means that they can lose millions of dollars due when students are not present to be counted as enrolled. Finally, chronic absence leads to students dropping out of high school, which is associated with three and a half times higher rates of incarceration (Sum, Khatiwada, McLaughlin, & Palma, 2009). This association between student absenteeism and student success holds not only for the absent student, but also for their peers (Foy, 2005). The negative effects of absenteeism disproportionately impact low-income students of color (Epstein & Sheldon, 2002).

Given the importance of chronic absenteeism to student success, and the new accountability pressures associated with chronic absenteeism, it is essential to understand the ways in which schools may be able to improve their student attendance. The objective of this study is to identify the school-based factors associated with school-level rates of chronic absenteeism in Detroit. We sought to address the following questions:

1. How does chronic absenteeism vary by school type and other school-level characteristics?

2. How is organizational effectiveness associated with chronic absenteeism in Detroit schools?

3. What can we learn about the underlying school organizational effectiveness measures that would inform the design of interventions to combat chronic absenteeism in Detroit?

Theoretical Framework

As schools across the country struggle to improve student performance, research shows that a crucial factor profoundly impeding their success is chronic absenteeism. When students miss school, they not only miss out on classroom learning for that day, they also fall behind academically, impact their peers' academic experiences, and risk negatively shaping their teachers' views of them (Balfanz & Byrnes, 2013; Epstein & Sheldon, 2002; Gottfried, 2014; Hartman, 2002). Yet, the factors that contribute to student absenteeism are complex, and many are not directly affected by school decision-making. To this end, we have conceptualized student attendance as being the result of environmental, family/individual, and school factors, as shown in Figure 1. More specifically, characteristics of each of these levels of influence can independently contribute to student attendance or moderate other factors' association with attendance. For example, having school-based health services may moderate the negative influence of family-level poverty and environmental conditions associated with childhood illnesses prevalent in industrial cities, such as asthma (Tinkelman & Schwartz, 2004). Additionally, a robust school transit system could fill in the gaps of a weak city transit system (Gottfried, 2017). This layered conception of how environment relates to individual behavior mirrors Bronfenbrenner's (1977) ecological theory, wherein human development is shaped by interactive biological, social, and environmental factors that change over time.
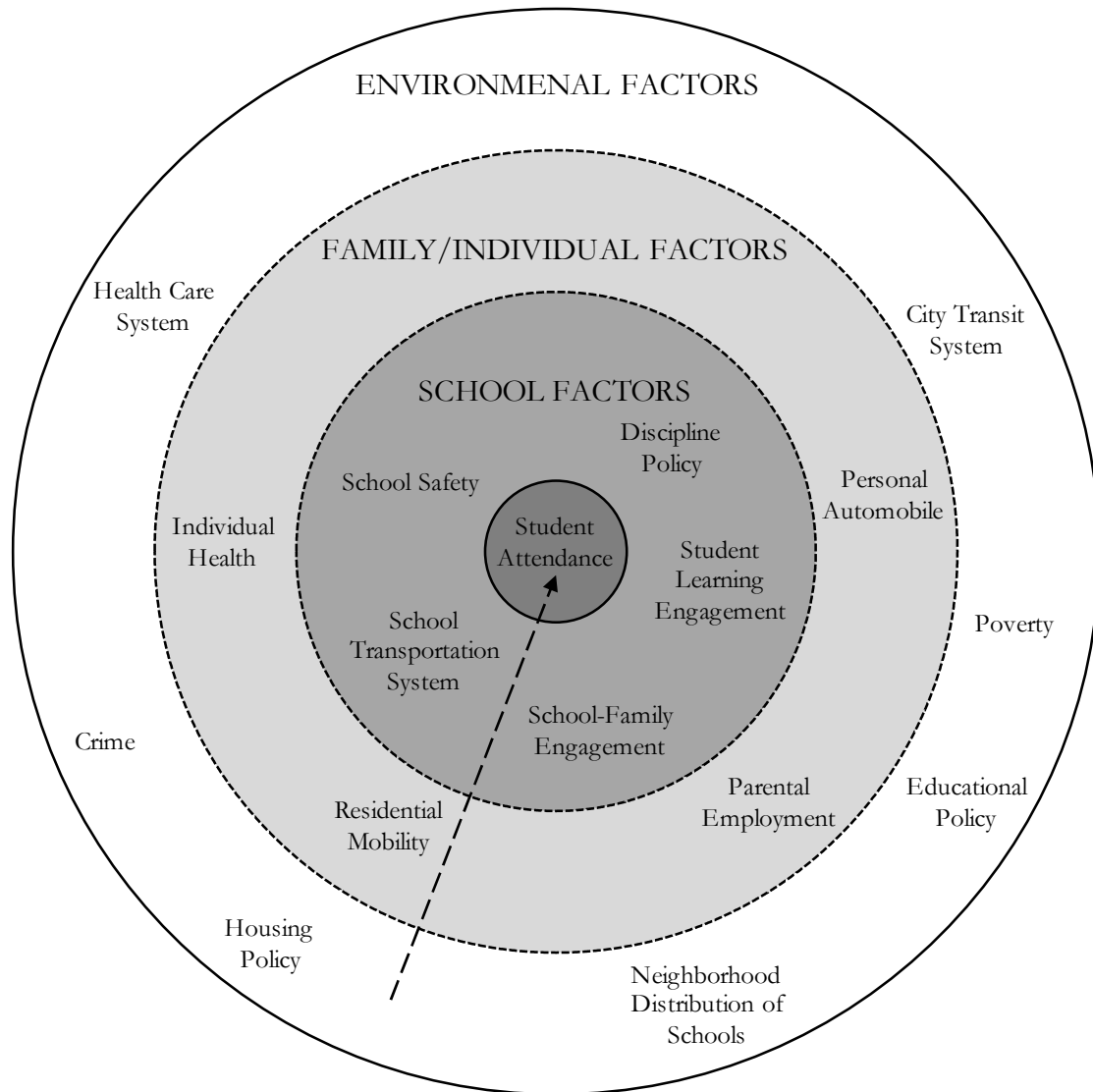
Figure 1. Conceptual framework of factors influencing chronic absenteeism. This figure depicts the direct and indirect relationships between examples of environmental, family/individual, and school factors that may affect the likelihood of a student attending school on a regular basis.

Environmental Factors

There are many environmental factors that can contribute to chronic absenteeism, including public health systems, crime, public transit, and concentrated poverty (e.g., Bell et al., 1994; Epstein & Sheldon, 2002). Environmental factors influence chronic absenteeism primarily through their association with family- and school-level factors. For example, impoverished students in Detroit are more likely to have inadequate housing and face greater exposure to lead

within their homes compared to other residents in the state (Rochester, 2017), which can have a direct effect on their cognitive abilities. Many schools and teachers are not adequately prepared to address the cognitive and health deficiencies brought on by poor environmental conditions. Therefore, students experiencing these challenges may struggle academically and become disengaged from schooling, often a precursor to chronic absenteeism (Anderson et al., 2004). More broadly, in cities like Detroit with large concentrations of low income residents, individual family poverty is compounded by a lack of adequate services related to individual factors associated with school attendance (e.g., personal health, access to transportation, safe routes to school). Additionally, environments marked by high concentrations of poverty are also often marked by under-resourced school systems and under-resourced community partners.

Family/Individual Factors

Family and individual student characteristics can influence school attendance both directly and indirectly. Directly, family characteristics such as single parent households or households experiencing conflict (e.g., marital problems, presence of abuse, etc.) have been found to be associated with school attendance (Bimler & Kirkland, 2001; Corville-Smith et al., 1998; Dahl, 2016; Romero & Lee, 2008). Furthermore, the level of parental engagement with a child's education (e.g., setting high expectations and talking to their children about school) has been found to be associated with student academic outcomes and school attendance (Catsambis & Beveridge, 2001; Jeynes, 2003; Sheldon, 2007). Additionally, individual student characteristics related to both cognitive ability and social development have been found to be related to rates of absenteeism (Alexander, Entwise, & Horsey, 1997; Dahl, 2016; Reschly & Christenson, 2006).

Previous research has found a strong positive relationship between student poverty and chronic absenteeism (e.g., NCES, 2006; Ready, 2010), and there are many theoretical reasons why this is the case. For example, impoverished families are less likely to have reliable transportation, more likely to have health problems, and less likely to have safe routes to school (Gottfried, 2017; Moonie et al., 2006). Additionally, low-income students (particularly low-income racial minorities) are more likely to be suspended, expelled, or in contact with the criminal justice system (Rodriguez, 2013; Skiba et al., 2014). Furthermore, students living in poverty are much more likely to have instability in housing and therefore more likely to move between schools, which is further associated with academic achievement and attendance (Metzger, Fowler, & Anderson, 2015).

Although research has shown students' family income status to be associated with absenteeism rates, high rates of student absenteeism are not inevitable in high-poverty, high-minority districts. In other words, environmental- and school-level factors can moderate the effects of individual and family poverty. Across Detroit, even among schools that served similarly situated students with regard to income levels, there was considerable variability in the percentage of chronically absent students. For example, out of the nine schools in the traditional public district which had between 95-97% of their students classified as economically disadvantaged, the school-level percentage of students who were chronically absent ranged from a low of 36% to a high of 86% (mean 57%). As such, while the percentage of students who are economically disadvantaged partially explains the range in student absenteeism in the district, there is not a perfect correlation. This suggests that other factors (e.g., related to the community and school) are moderating the relationship between family/individual factors and student attendance.

School Factors

Several school-level factors have the potential to influence student attendance, such as through school disciplinary policies or parental engagement activities. For example, research has shown that schools with stronger school-community relations are less likely to see high levels of student absenteeism (Epstein & Sheldon, 2002; Sheldon, 2007). Additionally, school-based transportation systems can reduce absenteeism (Gottfried, 2017), which is particularly relevant in communities without access to personal transportation or reliable public transportation. Beyond these direct school-level influences of student attendance, the overall school organizational climate has the potential to influence student attendance. This relates to the effectiveness of school leadership, teacher-student relations, academic engagement, and school safety, all of which have been shown to influence student academic progress (Bryk, Sebring, Allensworth, Easton, & Luppescu, 2010). For example, teacher attributes and practices have been found to be associated with student attendance, independent from their impact on student achievement (Gershenson, 2016). These aspects of a school environment relate to the extent to which schools are able to meet the individual needs of students, including moderating the effects of community and family/individual factors in promoting positive student engagement and encouraging regular student school attendance.

As such, the work presented here focuses on the extent to which variation in school organizational effectiveness is associated with chronic student absenteeism. More specifically, we seek to identify the association between what Bryk, et al. (2010) call the 5 "essentials" of school organizational effectiveness and chronic absenteeism. We contend that collectively these aspects of a school have the potential to moderate the environmental and family/individual factors associated with chronic absenteeism, as well as directly influence student attendance.

This study emerged out of a formal research-practice partnership with Detroit Public Schools Community District. The intent of the partnership is to combine the knowledge of seasoned practitioners at the district with the expertise of academic researchers to combat large-scale district challenges in Detroit. Our inaugural research study is on the problem of chronic absenteeism in Detroit, so our focus is on the school-based factors that district leaders could potentially manipulate in interventions, programs, or trainings. The quantitative exploratory research presented here will inform further analyses of student-level data on chronic absenteeism, as well as a qualitative investigation of schools that are outliers on our measure of interest.

Detroit Context

While similar in many ways to other big city school systems, Detroit has unique characteristics that inform our understanding of the problem of chronic absenteeism. Detroit Public Schools was controlled by a state-appointed emergency manager for most of the last decade, as the system faced financial collapse and was plagued by low student achievement and waves of internal corruption. Due in part to the state takeovers, leadership in the district has been unstable, with seven superintendents or emergency managers since 2007. The school board regained control of the district in January 2017, after a major legislative package split the district in two to stave off financial collapse. Now, the historic Detroit City School District (DPS) has only one function – paying off its debt. A new school district, Detroit Public Schools Community District (DPSCD), was created to operate the schools for the roughly 50,000 students still enrolled.

Michigan's charter school and open enrollment policies have dramatically changed historic student enrollment patterns. At 53%, Detroit has the second highest concentration of

students enrolled in charter schools in the country, trailing only New Orleans (National Alliance

for Public Charter Schools, 2015). In addition, another 6% of students attend suburban public

school districts through the state's interdistrict open enrollment policy. The traditional district

also allows intradistrict choice. More than 80% of students who live in Detroit do not attend their

neighborhood public school, and the average Detroit student who attends school in Detroit

commutes 3.4 miles each way (Data Driven Detroit, 2014). In addition, in 2011, the state created

the Education Achievement Authority (EAA), a state-run school district analogous to the

Recovery District in New Orleans. This district took over 15 of the lowest performing schools in

the city in 2012 and was plagued with corruption and staff turnover until 2017, when DPSCD

took back control of the schools.

The fractured school landscape in Detroit means that there were essentially 14 different

entities in charge of public schools in the city in 2014-15 – DPS, the EAA, and 12 charter school

authorizers (Coalition for the Future of Detroit Schoolchildren, 2015). There was no coordination

of services among these entities, so infrastructure to support regular school attendance was

limited and inefficient, particularly since most of these entities operated schools across the 143

square miles of the city, rather than concentrated in specific neighborhoods.

This policy context helps to explain why 58% of the 85,500 students in Detroit traditional

public and public charter schools were chronically absent in 2014-15, using Michigan's

definition of chronic absenteeism at the time, which was 10 or more days absent for any reason.

According to data from the U.S. Department of Education's Civil Rights Data Collection, Detroit

Public Schools had the highest rate of chronic absenteeism among the 100 largest districts by

enrollment in 2013-14, the last year of federally reported data (Office of Civil Rights, 2016). As

Michigan shifts to a new ESSA-aligned school accountability system that includes chronic

absenteeism as a measure of school quality, it is imperative that school leaders in Detroit determine how to boost attendance and decrease chronic absenteeism through school-based methods. One potentially fruitful path for determining appropriate interventions and organizational changes is to examine how school-level characteristics and organizational effectiveness have been associated with chronic absenteeism in the city in recent years.

Methods

Data

To explore the problem of chronic absenteeism across public schools in Detroit (N=165), we used school-level publicly available data from Michigan's Center for Educational Performance Information, including 2014-15 data on chronic absenteeism, which the Michigan Department of Education defined as missing 10 or more days of school. While this definition may overestimate the percentage of students who were chronically absent compared to the commonly used definition of 10% or more days, the relationships between this measure and our variables of interest are likely to be quite similar. The Office of Civil Rights, which used 15 or more days absent, found similar levels of chronic absenteeism in Detroit schools.

School-level analyses can be problematic because they are unable to reveal potential causal relationships between school characteristics and student outcomes. Student-level analyses, which we will conduct in the next phase of our research, will allow us to test the potential impact of school characteristics on the attendance of individual students. We will be able to demonstrate how student attendance changes over time in different school contexts, while controlling for variation in student attributes. For this study, we use school-level data purposefully, to measure how school-level characteristics, many of which are produced through the non-random sorting of students into schools (e.g., schools with concentrated numbers of economically disadvantaged

students), are related to chronic absenteeism. The organizational effectiveness scores are used to determine if school-produced characteristics like leadership and instruction might attenuate the association between aggregate student characteristics and absenteeism. A school-level analysis is particularly important to conduct now, as state departments of education begin to use chronic absenteeism as a measure of school quality in accountability scoring. States are likely to use simple point-in-time measures of school-level chronic absenteeism that are susceptible to student sorting and therefore not directly responsive to changes in school behavior. This is analogous to the use of point-in-time student achievement data rather than growth data to measure school academic performance.

As proxies for observable environmental and family/individual factors, we used school-level student count data on sex, race/ethnicity, special education status, English language learner status, and economic disadvantage, which includes students who qualify for free or reduced price lunch, are homeless, and/or are migrants (students are only counted once even if they are in more than one economic disadvantage category). We converted the student counts to percentages for each school based on total enrollment. From the state data, we were able to construct a grade level variable that defined elementary schools as schools that serve any grades K-5, which included 27 K-5 schools, 87 K-8 schools and 6 K-12 schools. Secondary schools included 6 middle schools, 35 high schools, and 4 middle-high schools. From Michigan's Educational Entity Master datasets, we were able to categorize schools as DPS, EAA, or charter schools. The 12 traditional public schools that were in the EAA during 2014-15 were included in the full model but removed in subsequent analyses of DPS and charter schools.

We merged the public data with a dataset from the non-profit Excellent Schools Detroit that included school-level organizational effectiveness measures. In the 2014-15 school year, all

DPS and charter schools in Detroit were asked to participate in an administration of 5Essentials surveys of students and teachers. The 5Essentials are a collection of survey instruments developed by the University of Chicago Consortium on School Research. Based on 20 years of research, they have been shown to measure the strength of a school's organizational effectiveness and capacity to improve student achievement (Bryk, et al., 2010). The surveys focus on five key "essential" areas which have been consistently shown to influence student achievement: (a) effective leadership, (b) collaborative teachers, (c) ambitious instruction, (d) supportive environment, and (e) involved families. The UChicago Consortium, using Chicago schools as a benchmark, analyzed the surveys for each school to create three types of scores that we use as independent variables in our models: Measure scores, Essential scores, and 5Essentials scores ("5Essentials," 2017). The Measure scores were determined by analyzing item-level responses using a Rasch model and then placed on a scale from 0 to 99. The Essential scores were determined by averaging the Measure scores for each of the above key essential areas. Therefore, the Measure scores and Essential scores are linear variables with a range from 0 to 99. Finally, the 5Essentials scores were aggregated into an overall summary indicator representing combined performance on the essential areas. The 5Essentials indicators are: not yet organized for improvement, partially organized, moderately organized, organized, and well-organized.

Excellent Schools Detroit incorporated these data into an annual school performance scorecard that they publicized as a school quality indicator, which may have contributed to the high participation rate and high teacher and student response rates on surveys. Out of the 194 traditional public and charter schools in Detroit in the 2014-15 school year, we have survey data and chronic absenteeism data on 85%. In our sample schools, the average teacher survey response rate was 77% and the average student response rate was 63%.

Analytic Method

As an exploratory study, we were interested in the correlational and predictive relationships between school-level characteristics and chronic absenteeism, with a focus on those factors that schools can directly influence. We were also interested in whether traditional public and charter schools displayed different associations of school-level factors and absenteeism. In turn, our analysis starts with descriptive statistics of all Detroit public schools in our sample and then separates charters and traditional public schools to analyze any differences. We also analyzed the correlational relationships between our variables of interest and chronic absenteeism.

To understand whether school organizational effectiveness was associated with chronic absenteeism in our sample schools, we ran a series of ordinary least squares regressions following the general model presented here:

Pct Chronically $Absent_t = \beta_0 + \beta_1$Pct $Male_t + \beta_2$Pct Econ $Dis_t + \beta_3$Pct Af $Am_t + \beta_4$Pct $Hispanic_t + \beta_5$Pct $White_t + \beta_6$Pct Special $Ed_t + \beta_7$Pct $ELL_t + \beta_8Elementary + \beta_9Organized_t + \beta_{10}Moderately_t + \beta_{11}Partially_t + \beta_{12}Not\ Yet + \beta_{13}Charter + \beta_{14}EAA + e$ (1).

To account for observable family/individual characteristics, which may also reflect environmental factors, the models predict the percent of students chronically absent (missing 10 or more days a year) in the school during the 2014-15 school year (t) as a function of the percent of students who are male, economically disadvantaged, African American, Hispanic, white, special education, and English language learners. We also included the elementary indicator, charter indicator, EAA indicator, and 5Essentials scores, using "well-organized" as our omitted variable. We assumed that the error term was normally distributed. Our first regression model includes all 165 schools in our sample, while Model 2 includes only DPS schools and Model 3

includes only charter schools. In the next stage of our analysis (Models 4-6), we replaced the

5Essentials scores with the Essential scores and analyzed the same sets of schools. As the final

stage of our analysis, we ran correlations between the Measure scores and chronic absenteeism to

further explain the associations we find in the regressions.

Results

Descriptive Statistics

Table 1 displays descriptive statistics of our key variables for all schools in the sample,

and Table 2 displays the results of t-tests comparing those variables for traditional public schools

and charters. The average school-level rate of chronic absenteeism in the whole sample was

59%. DPS and charter schools had significantly different average rates of chronic absenteeism,

with DPS at 68% and charters at 43%. DPS schools also had significantly higher rates of special

education students on average, while charters had significantly more students who were

economically disadvantaged than did DPS. We did not find significant differences between

charters and DPS schools in their organizational effectiveness either overall or among the

Essential scores representing effective leaders, collaborative teachers, involved families,

supportive environment, or ambitious instruction.

Table 1

Descriptive Statistics of Detroit Schools (N = 165)

Variable	Label	N	Mean	Std. Dev.	Min	Max
% Absent	Percent of students chronically absent	165	0.59	0.22	.028	0.96
% Male	Percent male students	165	0.51	0.08	0.00	0.93
% Econ Dis	Percent economically disadvantaged	165	0.82	0.13	0.39	1.00
% Asian	Percent Asian students	165	0.01	0.04	0.00	0.43
% Afr Amer	Percent African American students	165	0.86	0.28	0.02	1.00
% Hawaiian	Percent Hawaiian students	165	0.00	0.00	0.00	0.04
% Hispanic	Percent Hispanic students	165	0.08	0.22	0.00	0.95
% TwoRace	Percent students of two or more races	165	0.01	0.01	0.00	0.13
% White	Percent White students	165	0.04	0.13	0.00	0.87
% SpecialEd	Percent special education	165	0.15	0.17	0.00	1.00
% ELL	Percent English language learners	165	0.08	0.21	0.00	0.90
Any Elem	Indicator of elementary school	165	0.73	0.45	0.00	1.00
Charter	Indicator of charter school	165	0.38	0.49	0.00	1.00
EAA	Indicator of EAA school	165	0.07	0.26	0.00	1.00
Well-organized	Indicator of well-organized on 5 essentials	165	0.18	0.39	0.00	1.00
Organized	Indicator of organized on 5 essentials	165	0.22	0.42	0.00	1.00
Moderately	Indicator of moderately organized on 5 essentials	165	0.13	0.33	0.00	1.00
Partially	Indicator of partially organized on 5 essentials	165	0.30	0.46	0.00	1.00
Not Yet	Indicator of not yet organized on 5 essentials	165	0.16	0.37	0.00	1.00
5E: Leaders	Measure of effective leaders	152	45.47	17.60	3	90
5E: Teachers	Measure of collaborative teachers	151	44.65	18.84	6	92
5E: Families	Measure of involved families	152	42.34	17.66	11	88
5E: Environ.	Measure of supportive environment	139	53.49	16.74	18	99
5E: Instruct.	Measure of ambitious instruction	139	66.39	15.69	28	99

Table 2

T-tests Comparing DPS and Charter Schools

	DPS			Charter			95% CI for Mean Difference		
	M	SD	n	M	SD	n		t	df
% Ch. Absent	0.68	0.18	90	0.43	0.20	63	0.19, 0.31	8.23***	151
% Male	0.52	0.10	90	0.50	0.04	63	-0.01, 0.04	1.30	151
% Econ Dis	0.79	0.13	90	0.89	0.10	63	-0.15, -0.07	-5.54***	151
% Afr Amer	0.85	0.29	90	0.87	0.27	63	-0.10, 0.08	-0.24	151
% Hispanic	0.11	0.26	90	0.04	0.02	63	-0.01, 0.13	1.71	151
% White	0.02	0.05	90	0.07	0.20	63	-0.09, 0.00	-1.97	151
% SpecialEd	0.21	0.21	90	0.08	0.05	63	0.07, 0.18	4.63***	151
% ELL	0.10	0.23	90	0.06	0.19	63	-0.03, 0.11	1.07	151
Any Elem	0.77	0.43	90	0.71	0.46	63	-0.09, 0.19	0.73	151
Well-organized	0.20	0.40	90	0.19	0.40	63	-0.12, 0.14	0.15	151
Organized	0.20	0.40	90	0.29	0.46	63	-0.22, 0.05	-1.23	151
Moderately	0.17	0.37	90	0.08	0.27	63	-0.02, 0.20	1.58	151
Partially	0.31	0.47	90	0.25	0.44	63	-0.09, 0.20	0.77	151
Not Yet	0.12	0.33	90	0.19	0.40	63	-0.18, 0.05	-1.16	151
5E: Leaders	48.98	16.08	89	44.14	18.03	51	-1.00, 10,68	1.64	138
5E: Teachers	47.91	17.73	89	43.38	19.21	50	-1.86, 10.92	1.40	137
5E: Families	44.76	17.10	89	41.24	18.69	51	-2.62, 9.67	1.14	138
5E: Environ.	53.64	16.59	67	54.46	17.83	61	-6.84, 5.20	-0.27	126
5E: Instruct.	67.97	14.23	67	66.95	16.79	61	-4.41, 6.45	0.37	126

***$p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 3

Correlations Between School Characteristics and Chronic Absenteeism

School Characteristics Correlated with Chronic Absenteeism	Full Sample	DPS	Charters
%Male	0.30***	0.39***	0.09
%EconDis	0.03	0.53***	0.13
%AfrAmer	0.33***	0.47***	0.32*
%Hispanic	-0.20**	-0.47***	-0.09
%White	-0.28***	-0.12	-0.33**
%SpecialEd	0.44***	0.42***	0.18
% ELL	-0.28***	-0.48***	-0.27*
Any Elem	0.09	-0.03	0.28*
Well-organized	-0.15	-0.36***	0.07
Organized	-0.17*	-0.13	-0.13
Moderately	0.06	0.04	-0.08
Partially	0.11	0.26*	-0.18
Not Yet	0.16*	0.17	0.33**
5E: Leaders	-0.13	-0.33**	0.00
5E: Teachers	-0.14	-0.35***	0.00
5E: Families	-0.32***	-0.68***	-0.06
5E: Environment	-0.26**	-0.33**	-0.22
5E: Instruction	-0.26**	-0.39**	-0.23
Charter	-0.56***		
EAA	0.12		

***$p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Our analysis indicates that school-level percentages of male students, African American students, and special education students were positively correlated with chronic absenteeism in the full sample and in DPS, as shown in Table 3. However, percentages of Hispanic students and English language learners (whose populations often overlap in Detroit schools) were negatively correlated with chronic absenteeism. In DPS, the percentage of economically disadvantaged students was also positively correlated with chronic absenteeism. In charter schools, the percentage of African American students and the elementary school indicator were positively

correlated with chronic absenteeism, while the percentage of white students and ELL students were negatively correlated with chronic absenteeism. Charter schools were negatively correlated with chronic absenteeism.

The correlations between chronic absenteeism and the organizational effectiveness scores were different in DPS and charter schools. In DPS, the 5Essentials score indicators of "well-organized" and "partially organized" were significant in the expected directions. In charters, the 5Essentials score indicator of "not yet organized" was significantly correlated with higher chronic absenteeism, but the other 5Essentials scores were not significant. In DPS, all of the Essential scores were significantly and negatively correlated with chronic absenteeism, with the Essential score representing involved families as the strongest correlation at -0.68. However, none of the Essential scores were significantly correlated with chronic absenteeism in Detroit charter schools.

Regression Analysis

We estimated six regression models to identify the associations between school-level characteristics and chronic absenteeism. The results of the models are displayed in Tables 4 and 5. In the models in Table 4, we estimated the association between school-level characteristics, including the 5Essentials scores, and the percentage of students who were chronically absent. Positive coefficients indicate an association with higher levels of chronic absenteeism, while negative coefficients indicate lower levels of chronic absenteeism. Model 1, which included all Detroit schools in the sample, suggests that school organizational effectiveness and some student characteristics were significantly related to chronic absenteeism in Detroit schools. The percentage of male students, economically disadvantaged students, and special education students were significantly and positively associated with chronic absenteeism. A standard

deviation increase in the percentage of economically disadvantaged students, for instance, was associated with a .3065 standard deviation increase in the percentage of chronically absent students at a school.

Table 4

Estimated Regression Results of Predictors on School-Level Chronic Absenteeism

	(1) All Detroit Schools		(2) DPS Schools		(3) Detroit Charters	
	Parameter Estimate (Standard Error)	Standardized Estimate	Parameter Estimate (Standard Error)	Standardized Estimate	Parameter Estimate (Standard Error)	Standardized Estimate
% Male	0.3512* (0.1688)	0.1235	0.2064 (0.1296)	0.1120	0.5251 (0.7465)	0.1093
% Econ. Dis.	0.5215*** (0.1046)	0.3065	0.7339*** (0.0935)	0.5367	0.3626 (0.2657)	0.1862
% Af. Am.	0.3160 (0.2983)	0.4080	0.6674 (0.4628)	1.0951	-0.1241 (0.6270)	-0.1738
% Hispanic	0.1269 (0.2572)	0.1285	0.1658 (0.2257)	0.2443	-0.3951 (0.6173)	-0.3017
% White	0.0709 (0.3045)	0.0430	0.7204* (0.3596)	0.2011	-0.5765 (0.6982)	-0.5881
% Spec. Ed.	0.2036* (0.0818)	0.1579	0.149* (0.0639)	0.1750	0.8289 (0.7159)	0.1968
% ELL	-0.0371 (0.1906)	-0.0366	0.2578 (0.4662)	0.3408	0.1689 (0.3087)	0.1639
Elementary	0.0299 (0.0273)	0.0618	-0.0127 (0.0278)	-0.0306	0.0939 (0.0590)	0.2185
Organized	0.0435 (0.0365)	0.0842	0.0873* (0.0348)	0.1982	0.0033 (0.0749)	0.0076
Moderately	0.0435 (0.0417)	0.0673	0.15*** (0.0374)	0.3173	-0.1691 (0.1003)	-0.2354

Partially	0.0524 (0.0345)	0.1118	0.1209*** (0.0322)	0.3178	-0.0788 (0.0691)	-0.1768
Not Yet	0.1186** (0.0394)	0.2037	0.1384*** (0.0402)	0.2573	0.0776 (0.0765)	0.1569
Charter	-0.2789*** (0.0297)	-0.6290				
EAA	0.0006 (0.0453)	0.0007				
Intercept	-0.3015 (0.3059)		-0.7501 (0.467)		-0.1198 (0.7764)	
N	165		90		63	
Adj. R2	0.5800		0.6899		0.1924	

***$p < 0.001$; ** $p < 0.01$; * $p < 0.05$

The 5Essentials score indicator of "not yet organized" was also significantly associated with higher levels of chronic absenteeism. Compared to the omitted variable of "well-organized," "not yet organized" schools had an average of nearly 12 percentage points more students chronically absent. This finding confirms analyses from the UChicago Consortium on School Research on the relationship between school organizational effectiveness and student attendance (Allensworth & Evans, 2016). Model 1 also shows that, even while controlling for many observable school characteristics and school organizational effectiveness, the charter school indicator was significant ($p < 0.001$) and negatively associated with chronic absenteeism. Charters that are as well organized as DPS schools have on average 27 percentage points fewer students chronically absent.

In Model 2, we removed the charter and EAA schools from the sample and only analyzed DPS schools (N=90). The percentage of economically disadvantaged students and special education students remained significantly associated with higher chronic absenteeism. In

addition, the 5Essentials score indicators of "moderately organized," "partially organized," and "not yet organized" were all significant and positively associated with chronic absenteeism as compared to "well-organized" schools. The adjusted R-squared for Model 2 was 0.6899, indicating that the model variables explained 69% of the variation of chronic absenteeism in DPS schools.

In Model 3, we estimated a regression with the same predictors as Model 2, but with only charter schools (N=63). Here, none of the school characteristics or 5Essentials score indicators were significant. In addition, the adjusted R-squared for Model 3 was only 0.1924, meaning that the model only accounted for 19% of the variation in chronic absenteeism in charter schools.

To further explore the relationship between school organizational effectiveness and chronic absenteeism, we estimated a second series of regressions, substituting the 5Essentials score indicators with Essential scores, as shown in Table 5. In Model 4, which includes all schools in our sample, none of the Essential scores were significant. When we analyzed only DPS schools in Model 5, the Essential score for involved families had a significant and negative association with chronic absenteeism. With every standard deviation increase in the involved families Essential score, there was a 0.4035 standard deviation decrease in chronic absenteeism. As shown in Model 6, there was not a significant relationship between the Essential scores and chronic absenteeism in charters. In this model, the elementary indicator was significant ($p < 0.05$) and positive, indicating that elementary charter schools (N=45) had about 18 percentage points higher chronic absenteeism than non-elementary charter schools (N=18). This finding runs counter to most research, which suggests that absenteeism rates are higher in high school than in elementary school. The selection of students into charter schools may explain this finding, as most charter high schools in Detroit had feeder charter schools within their networks, creating a

pipeline of students who may be committed to the charter school. In addition, many Detroit charters had non-traditional grade configurations, such as K-8 or K-12, which were included in the elementary indicator.

Table 5

Estimated Regression Results of 5E Measures on School-Level Chronic Absenteeism

	(4) All Detroit Schools		(5) DPS Schools		(6) Detroit Charters	
	Parameter Estimate (Standard Error)	Standardized Estimate	Parameter Estimate (Standard Error)	Standardized Estimate	Parameter Estimate (Standard Error)	Standardized Estimate
% Male	0.0477 (0.1999)	0.0146	-0.0846 (0.1638)	-0.0371	-0.1325 (0.8321)	-0.0265
% Econ. Dis.	0.4279*** (0.1269)	0.2626	0.4312*** (0.1200)	0.3210	0.2801 (0.3477)	0.1589
% Af. Am.	-0.1089 (0.4183)	-0.1489	0.1073 (0.5640)	0.1831	-0.0189 (1.0534)	-0.0256
% Hispanic	0.0752 (0.2629)	0.0851	-0.0223 (0.2290)	-0.0345	0.1561 (0.8651)	0.1326
% White	-0.0737 (0.3616)	-0.0381	0.3711 (0.3850)	0.1056	0.0092 (1.0876)	0.0080
% Spec. Ed.	0.9575*** (0.2624)	0.3064	0.7766** (0.2266)	0.3070	1.4016 (0.9998)	0.2711
% ELL	-0.4379 (0.3489)	-0.4582	-0.0690 (0.5433)	-0.0949	-0.3635 (0.6768)	-0.3231
Elementary	0.0727 (0.0381)	0.1533	-0.0359 (0.0430)	-0.0739	0.1823* (0.0842)	0.4618
5E: Leaders	-0.0013 (0.0013)	-0.1180	-0.0015 (0.0015)	-0.1330	-0.0003 (0.0027)	-0.0263
5E: Teachers	0.0013 (0.0014)	0.1193	0.0021 (0.0015)	0.1955	-0.0006 (0.0031)	-0.0591

5E: Families	-0.0007 (0.0013)	-0.0593	-0.0042** (0.0016)	-0.4035	0.0031 (0.0025)	0.3219
5E: Environment	-0.0003 (0.0014)	-0.0241	0.0009 (0.0015)	0.0861	-0.0008 (0.0028)	-0.0687
5E: Instruction	-0.0023 (0.0015)	-0.1666	-0.0019 (0.0017)	-0.1495	-0.0039 (0.0031)	-0.3373
Charter	-0.2038*** (0.0370)	-0.4843				
EAA	0.0406 (0.0498)	0.0562				
Intercept	0.4285 (0.4733)		0.4284 (0.6263)		0.2438 (1.1415)	
N	125		66		48	
Adj. R2	0.6149		0.7478		0.1443	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

We also estimated a set of regressions with a log transformation of percent chronically absent as the outcome variable (not shown in the table), because we found that the distribution was not normal for DPS schools, although it was for charter schools. The direction and significance of the relationships between the organizational effectiveness scores and chronic absenteeism did not change. There were some differences in the strength of the associations between the control variables and chronic absenteeism. For instance, in Model 1, the percentage of male students was not significant and the elementary indicator was significant. In Model 2, the percentages of white and special education students were not significant. In Models 3 and 4, the elementary indicator became significant, while in Model 6 it became not significant.

Correlations with Measure Scores

To further explain these findings, we conducted a final analysis of the correlations between the Measure scores and chronic absenteeism. While organizational effectiveness explained some of the variation in chronic absenteeism in DPS schools, it was important to identify which specific organizational characteristics might be driving this finding. In addition, the Measure scores may be correlated with chronic absenteeism in charter schools, even if the 5Essentials score indicators and Essential scores were not significantly associated with chronic absenteeism while controlling for other school characteristics. We first analyzed the correlations between chronic absenteeism and all 35 of the Measure scores in the 5Essentials survey data, as shown in Table 6. We found 16 Measure scores that were significantly and negatively correlated with chronic absenteeism in the full sample, with "expectations for postsecondary" as the strongest at -0.5456. This Measure score is calculated only for high schools and is factored into the score for the Essential representing supportive environment.

Table 6

Correlations Between Chronic Absenteeism and 5Essentials Measures

Essential	Measure	Full Sample	DPS	Charters
Environment	Academic Personalism	*		
Environment	Expectations for Postsecondary Education (HS)	***	**	
Environment	Safety	***	***	**
Families	Parent Influence on Decision Making in Schools		***	
Families	Parent Involvement in School	***	***	
Families	Teacher-Parent Trust	***	***	
Instruction	Academic Press	***	***	
Instruction	Quality of Student Discussions	***	***	
Leaders	Program Coherence		***	
Leaders	Teacher Influence	**	**	
Leaders	Teacher-Principal Trust		**	
Supplemental	Classroom Disruptions	***	***	*
Supplemental	Classroom Rigor	**	*	
Supplemental	Reflective Dialogue	**		
Supplemental	School Safety	***	***	**

Supplemental	Socialization of New Teachers		*	
Supplemental	Student Responsibility	***	***	
Supplemental	Teacher Safety	***	***	*
Teachers	Collective Responsibility		*	
Teachers	School Commitment	*	***	
Teachers	Teacher-Teacher Trust	*	**	
Environment	Peer Support for Academic Work (6-8)			
Environment	School-Wide Future Orientation (HS)			
Environment	Student-Teacher Trust			
Instruction	English Instruction			
Instruction	Math Instruction			
Leaders	Instructional Leadership			
Supplemental	Academic Engagement			
Supplemental	Grit			
Supplemental	Human & Social Resources in the Community			
Supplemental	Importance of High School for the Future (HS)			
Supplemental	Innovation			
Supplemental	School Connectedness			
Teachers	Collaborative Practices			
Teachers	Quality Professional Development			

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

When we ran the same correlations with just DPS schools, we found that all but two of the same 16 Measure scores remained significant, and five additional Measure scores became significant: collective responsibility, socialization of new teachers, program coherence, parent influence on decision making in schools, and teacher-principal trust. When we ran the correlations for just charter schools, only four of the Measure scores were significant, all of which were also significant in the full sample and for DPS schools: classroom disruptions, safety, school safety, and teacher safety. The three safety Measures are drawn from different survey items and represent different dimensions of safety. More information about the 5Essentials surveys can be found on the UChicago "5Essentials" (2018) website. Three of the four Measure scores that were significantly correlated with chronic absenteeism in charter schools were supplemental to Essential scores, meaning that they did not contribute to the scores analyzed in the regression models. When we estimated a regression using the same school

control variables and the Measure scores that were correlated with chronic absenteeism in charters, the results mirrored our previous analyses, with no variables significant. We also ran a t-test on these four variables to see if there were significant differences between charters and DPS schools, and we found that charter schools scored significantly higher ($p < 0.5$) on the measure of safety, which is factored into the Essential score representing supportive environment.

Discussion

The findings we have presented have important implications for future practice, policy, and research related to chronic absenteeism. First, we discuss how our analysis is helpful in guiding school and district leaders to consider practices that may moderate the effect of environmental and family/individual factors on student attendance. Then, we explore how the use of chronic absenteeism as a measure of school quality in accountability systems may produce biased results. Finally, we outline how future research can expand upon our findings to understand the causal relationship between school organizational effectiveness and student chronic absenteeism.

Implications for Practice

Our findings point toward potential school-based practices to reduce chronic absenteeism, particularly in Detroit Public Schools Community District and other large urban traditional school districts. Even while controlling for proxies of aggregated environmental and family/individual factors, such as the percentage of students who are economically disadvantaged, some school organizational effectiveness factors were associated with chronic absenteeism in DPS. This suggests that the influence of these outside of school factors can be moderated by school practices. Our finding that the Essential score representing "involved

families" was significantly and negatively associated with chronic absenteeism in DPS indicates that parent engagement initiatives may be a sensible place to start. Practices aimed to increase parent influence on decision making in schools, parent involvement, and teacher-parent trust may boost attendance rates and decrease chronic absenteeism over time. Epstein and Sheldon (2002) found, for instance, that connecting parents to a specific contact person at the school and making home visits decreased chronic absenteeism. Focusing in on a target student population that is vulnerable to chronic absence may also lead to more effective interventions. For instance, programs that specifically support low-income, migrant, or homeless families – those who are considered economically disadvantaged – may boost school attendance while also increasing perceptions of organizational effectiveness.

However, because the parent involvement Essential score is based on reports of teacher perceptions of parents, it may also be closely related to family/individual factors. For instance, in our dataset, there is a significant ($p < 0.01$) and negative correlation between the family Essential score and the percentage of students who are economically disadvantaged. This suggests that the score represents teachers' perceptions of families and their ability or willingness to be involved, in addition to school attempts to actively engage families.

The practical application of our findings for charter schools is less clear than it is for DPS. None of the aggregated student characteristics or Essential scores were significantly associated with chronic absenteeism in charters, and the only variable that was significant was the elementary indicator in Model 6. More research is needed to fully understand the associations between grade configuration and chronic absenteeism in charters. While we did not find a significant association between organizational effectiveness and chronic absenteeism in charters while controlling for other observables, we did find that charter schools that are "not yet

organized" for improvement are correlated with higher chronic absenteeism, as shown in Table 3. The correlations between Measure scores and chronic absenteeism in Table 6 suggest that practices aimed at improving student and teacher perceptions of safety may help to improve school attendance.

Implications for Policy

Under the *Every Student Succeeds Act*, states are required to incorporate a "non-academic" measure of school quality or student outcomes in their accountability systems. In response to this mandate, many states have proposed using school-level and subgroup chronic absenteeism rates to measure school quality. The U.S. Department of Education, for instance, approved Michigan's proposal to weight chronic absenteeism as 29% of its school quality indicator and 4% of the overall school accountability system (Michigan Department of Education, 2017). The use of chronic absenteeism as an indicator of school quality suggests that state departments of education believe that the practices and policies of a school can and do have a significant impact on student attendance. While that may be true at the individual level, our findings suggest that environmental and family/individual characteristics are likely to play a significant role in influencing student attendance, and the ability of schools to moderate that influence varies by school type.

Our finding that there was no significant association between organizational effectiveness and chronic absenteeism in charter schools, while controlling for student observables, casts doubt on the theory of action presumed by holding schools accountable for attendance. In Detroit charter schools, unobserved characteristics appear to be driving school attendance. For instance, charter school families choose to enroll in schools outside of the traditional school district, which may make them more likely to regularly attend school, despite environmental or

family/individual characteristics that are typically associated with chronic absenteeism. One of the founding goals of the charter school movement was to create new school models that appealed to families' needs and desires (Chubb & Moe, 1990). If charter schools in Detroit are doing this, then charter families may be more satisfied and therefore more committed to ensuring their children attend school regularly than families in traditional public schools.

Charters may also have policies or practices unrelated to organizational effectiveness that contribute to student attendance. For instance, DPS students can access school buses or free city transportation only if they attend their neighborhood school and live more than three-quarters of a mile away from the school for K-8 students and more than one and a half miles away for high school students ("Office of Student Transportation," 2017). This means that more than 60% of DPS students do not have access to free transportation to school. Self-reported data from charter schools indicates that up to 56% of charter buildings offer free transportation for their students. The way transportation services are allocated may impact chronic absenteeism differently in the sectors.

It could also be that charters are more likely to have policies that target absent students, either by supporting their regular attendance, or by pushing them out of school after a certain number of absences. While the practice of push-out of low-performing students has been documented in news reports (Ahmed-Ullah & Richards, 2014), empirical research has been mixed on whether this is a systemic problem in charter schools (Winters, 2015; Zimmer & Guarino, 2013). Widespread policies that push out students would likely be evident in the organizational effectiveness survey data, but we did not find significant differences between charters and DPS schools on those indicators.

The reporting of attendance may not be consistent across schools in Detroit. Schools within DPS have a common protocol and system for reporting absences, making it more likely that reporting is somewhat consistent across schools. Charter schools, however, are by design independent from centralized governance and can be as different from each other as they are from traditional public schools (Zimmer & Buddin, 2007). Even charter schools run by the same management company may collect attendance data differently. If every charter school in Detroit reports absences differently, through different systems, at different times, and perhaps even with different definitions for an absence, there may not be strong enough power in the models with only charters. Although it's difficult to group charter schools in Detroit, it may be important for future research to separate charters by authorizer or management company to determine if there are common associations between characteristics of those entities and chronic absenteeism.

Our findings suggest that the non-random sorting of students into schools may be contributing to differences in chronic absenteeism by school type. This has important implications for state school accountability systems that compare schools across sectors. Michigan, for instance, intends to weight chronic absenteeism in its overall school accountability system and use the 75th percentile of the 2016-17 statewide average of not chronically absent students to determine a long-term goal for schools to meet (Michigan Department of Education, 2017). Michigan's approved ESSA plan indicates that the long-term goal should be roughly 94% of students not chronically absent. However, if school organizational effectiveness moderates external influences on chronic absenteeism differently by school type or student characteristics, accountability systems may mislabel schools or produce mixed messages about school performance. In our sample, for instance, DPS schools may be penalized for higher chronic absenteeism than charter schools, even if the differences are due to student unobservable

characteristics, rather than school practices. In addition, resources may be spent on reducing chronic absenteeism in some schools, but not others, even though the reasons for absenteeism may be outside of the school's control. Finally, an over-emphasis on reducing the *metric* of chronic absenteeism may lead school leaders to prioritize practices that will reduce it, even if those are not the same practices that have been shown to lead to academic learning gains, such as those in the 5E scores. Without additional oversight or common metrics, the high-stakes accountability for chronic absenteeism creates possible incentives to underreport absences.

Future Research

Future research that utilizes student-level data has the potential to identify the associations between school organizational effectiveness and individual chronic absenteeism, particularly by controlling for more concrete measures of student characteristics. Additionally, using longitudinal student-level data would allow us to more accurately explore causal relationships between school organizational effectiveness and chronic absenteeism through analysis of change in student absenteeism over time.

In addition to quantitative analysis of student-level data, qualitative data collection could be useful in identifying variation in district/charter school policies and practices regarding measuring and reporting student absences, as well as the prevalence of "pushing out" students who either are or are more likely to be chronically absent. In other words, there are school and student characteristics that are not "observable" in quantitative data. Qualitative research could illuminate some of the institutional dynamics that shape student attendance and the unintended consequences of incorporating chronic absenteeism in high stakes accountability policy.

While this analysis is an important first step in understanding chronic absenteeism in Detroit schools, it has several limitations which should be considered when interpreting our

findings. It is clear that we have not identified the variables that are most strongly associated with chronic absenteeism in charter schools. Additional information, such as school geography in relation to student residences, parental commitment to schools of choice, and transportation options may help to illuminate why charter schools have lower chronic absenteeism rates than DPS schools. These factors will be explored in future collaborative research with the district, which will include student-level analyses of predictors of chronic absenteeism and investigation into the barriers and opportunities to combating chronic absenteeism in a set of district pilot schools.

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