ABSTRACT

MCCOLSKEY-LEARY, COLLIN PATRICK. Making an Impact? Evaluating the Effectiveness of a Community-Based Model of Student Support. (Under the direction of Drs. Anna Jacob and Stephen Porter).

Even after significant education turnaround efforts supported by federal and state agencies, achievement gaps between white students and students of color and students not living in poverty and students living in poverty persist (McFarland et al., 2018). Student academic outcomes are often driven by factors unrelated to teaching in classrooms (e.g., student engagement, attendance, and parent/family engagement that have historically not been the focus of school turnaround efforts (Hammond et al., 2007; Mac Iver & Mac Iver, 2009; Rumberger & Lim, 2008). School-community partnerships have shown promise when providing additional support to students placed at-risk of academic failure and dropout. Integrated Student Supports (ISS) are one such model of student support. Integrated Student Supports are "a school-based approach to promoting students' academic success by developing or securing and coordinating supports that target academic and non-academic barriers to achievement" (Moore & Emig, 2014).

Communities In Schools (CIS) is a nationwide organization partnering with districts and schools to deliver Integrated Student Supports. This study is a quasi-experimental evaluation of the effect of a local CIS affiliate on student attendance, behavior, academic performance, and drop out. The study used propensity score analysis with inverse propensity weights to estimate the effect of CIS case-management on twelve analytic samples. Each analytic sample contained different students based on three factors: (1) whether the student attended or did not attend a school served by CIS, (2) whether the student was in middle or high school the year before being case-managed by CIS, and (3) whether students were enrolled in the school district in the 2017-

18, 2018-19, or both school years. The preferred model consisted of students case-managed by CIS for two (both) school years compared to students attending schools served by CIS but not case-managed.

The results of this study are mixed, yet promising, especially for the CIS affiliate under study. Generally, similar to previous CIS evaluations, the analyses indicated that students case-managed by CIS for only one school-year (2017-18 or 2018-19), regardless of whether the comparison group was students attending or not attending CIS schools, did not have a consistent significant effect on student attendance, behavior, academic performance, or probability of dropping out (Parise et al., 2017). On the other hand, when compared to students attending schools served by CIS, students case-managed by CIS had significantly higher attendance rates and a significantly lower probability of dropping out. Specifically, students case-managed by CIS had a 1-2% higher attendance rate and were a third less likely drop out. A stronger effect was detected for students whose case-management started in middle school and carried over into high school. The implications of this study and recommendations for policy, practice, and future research are discussed.

Making an Impact? Evaluating the Effectiveness of a Community-Based Model of Student Support

by
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DEDICATION

I would like to dedicate my dissertation to my family, friends, mentors, and colleagues whose support and encouragement have helped me be and do better.

BIOGRAPHY

Collin McColskey-Leary was born in Winston-Salem, North Carolina, and was raised in Kernersville, North Carolina. He graduated from East Forsyth High School and went on to attend the University of North Carolina at Greensboro in Greensboro, North Carolina, and graduated with a B.S. in Business Administration. He received his M.A. in Criminology and Public Sociology from the University of North Carolina at Wilmington in Wilmington, North Carolina, before enrolling in the doctoral program in Education Evaluation and Policy Analysis at North Carolina State University. He has held positions at non-profit and government organizations seeking to close achievement and opportunities gaps for students.

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To my family—Dad, Mom, Kevin, and Meghan—thank you for your unwavering support and for believing in me. My parents are the origin of my interest in using research and evaluation to create more equitable education/justice systems, and I thank them for their lifelong lessons on the importance of acknowledging my privilege and living a life according to my values. Dad, your insights into academia, guidance, and thought partnership have been critical to my success. Mom, you were always in my corner, keeping me calm when things weren't going well. Thank you for always lending a listening ear. Kevin, not only are you my older brother, but you're also my friend and role model. Meghan, you are my rock and could not imagine life without you.

I would also like to thank and acknowledge my friends and mentors who stuck with me and supported me while I tried to balance working full-time with completing a doctorate – thank you for providing the occasional needed relief and distraction. Please know that you are appreciated!

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CHAPTER 1: INTRODUCTION

Although a majority of school funding comes from state and local sources, legislation and public, private, and non-profit initiatives have sunk huge amounts of money into supporting schools and students. These initiatives have given districts and schools the flexibility to determine what turnaround and student support strategies best fit their communities, staff, families, and students, as well as have supported district and school partnerships with community-based organizations. However well-intentioned, these strategies often ignore or deemphasize the influence of non-academic factors on student success. Even so, students of color and students who are experiencing poverty consistently attend lower performing schools, perform worse academically, and drop out more frequently than their white and more wealthy peers. Without removing the community, school, family, and individual barriers that create the conditions that lead to student disengagement, efforts to increase achievement and graduation rates will continue to struggle. What follows is an evaluation of a community partnership program that works to combine the art of relationships with the science of what works to improve the academic outcomes of at-risk students.

In North Carolina, 23% of children under the age of 18 live in poverty; more than half are not performing at grade level on standardized reading and math tests; and over 11,000 drop out annually (North Carolina Department of Public Instruction [NCDPI], 2019; US Census, 2019). Roughly 86% of students who start 9th grade graduate within four years (NCDPI, 2019). Simply put, even after several government initiatives including the Elementary and Secondary Education Act (ESEA), increased funding to high-poverty and low-performing schools through School Improvement Grants (SIG), and Race to the Top (RttT), achievement and opportunity gaps persist in our schools (McFarland et al., 2018). Students of color and those experiencing poverty

are still being left behind, impacting not only students' futures and life courses, but also our communities, labor force, and society more broadly.

Effective school leaders, quality teachers, and supports to meet students' academic and non-academic needs are necessary to ensure the success of all students. However, without meeting the most basic of students' needs while ensuring students attend school regularly and are behaviorally engaged, it is hard to imagine a circumstance where all students will thrive (Gottfried, 2015). Furthermore, dropping out is process of disengagement over time, is rarely the result of a single event (Hammond, Linton, Smink, & Drew, 2007), and is often attributed to a combination of individual and institutional factors (Mac Iver & Mac Iver, 2009; Rumberger & Lim, 2008). While individual factors include a student's educational performance, behaviors, attitudes, and background, institutional factors relate to dynamics in families, schools, and communities (Rumberger & Lim, 2008).

Recent school turnaround efforts have focused improvement strategies on hiring more effective administrators and teachers, increasing accountability for student proficiency and growth, providing additional professional development opportunities for administrators and teachers, increasing the support available to teachers, increasing access to technology, and closing consistently low-performing schools. These efforts, while critical to a state's or district's ability to provide a sound basic education, often ignore barriers to learning within the school, in students' homes, families, and communities, and for the student personally; thus, many initiatives and improvements may not meet the needs of all students. Recent policy changes, however, have recognized the influence of non-academic factors (e.g., student engagement, attendance, and parent/caregiver engagement) on student success and have supported efforts to understand and mitigate barriers they may cause.

With the passage of the Every Student Succeeds Act (ESSA) in 2015, school districts and schools are now explicitly allowed to utilize Title I resources to fund, leverage, or support the implementation of Integrated Student Supports (ISS), which are "a school-based approach to promoting students' academic success by developing or securing and coordinating supports that target academic and non-academic barriers to achievement" (Moore & Emig, 2014; Moore, Lantos, Jones, Schindler, Belford, & Sacks, 2017). Title I funds are given to districts and schools with high proportions of low-income children to support students' academic growth. Communities In Schools (CIS) is the largest provider of Integrated Student Supports in the country and has great potential to help schools ensure that students come to school prepared to learn and graduate on time, but only a small body of research has assessed the efficacy of this organization at accomplishing these goals.

Statement of the Problem

More often than not, school turnaround efforts focus on school-related influences on achievement such as teacher quality, professional development, staff changes, and school structure (e.g., extended learning day). However, students do not attend school in a vacuum. Many students, including those living in poverty, face challenges and barriers that cannot be addressed through standard turnaround strategies. Research has consistently found students' educational experiences and success are shaped by interrelated non-academic factors such as student engagement, attendance, and behavior (Hammond et al., 2007; Mac Iver & Mac Iver, 2009; Rumberger & Lim, 2008). Comprehensive and integrated approaches to improving educational outcomes for students have been limited in broad, consistent implementation, yet such approaches have shown promise, especially when such activities leverage the resources of community-based non-profit organizations (ICF International, 2010).

Communities In Schools (CIS) is one such organization. While results of evaluations of CIS have been mixed, many of the evaluations have had implementation and methodological issues such as attrition, inconsistent implementation across geographic locations and sites, and measurement of outcomes that may not reflect the goals for the student. The current study incorporates lessons from previous evaluations by exploring the impact of one CIS affiliate's high school programming on student attendance, behavior, academics, and on-time graduation. Subsequent chapters discuss previous research on Integrated Student Supports and CIS evaluations, as well as the methods and findings from the evaluation, and discussion of implications and areas of future research.

Significance of this Study

This study of the impact of CIS programming on student performance is significant for two reasons. First, to date, there have only been three published evaluations of the CIS model. The results of these studies have been mixed, yet large investments continue to be made by public, private, and non-profit organizations to support CIS. Second, the CIS Model and how it is implemented locally has changed and shifted over recent years, so it is necessary to conduct an updated evaluation of the effects of case-management on student outcomes. Local CIS organizations, also known as affiliates, have been encouraged to explore innovative ways to serve schools and students and continuously improve their implementation to meet local needs and context. This shift has resulted in changes to the way that students are identified and served, especially within local affiliates. The affiliate under investigation for this study implemented an adjusted model wherein students were matched to practitioners with specific skills based on their level of need. To meet CIS Model parameters, CIS must place a practitioner in a school who assesses needs, develops a plan, and delivers supports through a tiered model of support. While

some supports are available to all students attending the school, this study will focus solely on the effectiveness of the CIS Model on students case-managed by CIS practitioners. Thus, this study not only expands the CIS evidence base through quasi-experimental methods, but it also helps CIS, school systems, and policy makers understand the impact of programs delivering Integrated Student Supports on student outcomes.

Research Questions

1. Do students who participate in CIS high school programming differ from similar students who do not participate in CIS programming in terms of their absences, probability of being chronically absent, number of short-term suspensions and days suspended, academic performance (standardized tests and GPA), and probability of dropping out?
2. Does the number of consecutive years enrolled in CIS programming differentially impact students' outcomes?

Intervention Background and Theory of Change

Created and first implemented in New York in 1977, Communities In Schools (CIS) served 2,350 schools and community-based sites and over one and a half million students across the country in the 2016-2017 school year (Communities In Schools [CIS], 2018). CIS proposes that all students should: have a one-on-one relationship with a caring adult; attend a school with an environment conducive to learning; live a healthy life; have a marketable skill upon graduation; and have a chance to give back to their community. By working with schools, partners, and community members to ensure school and student needs are met, CIS hopes to increase positive behaviors associated with academic achievement (i.e., good attendance, positive behavior, strong parent/family engagement) with the end goal of students graduating on-time with the skills necessary for work and/or higher education. The mission of CIS is to

"surround students with a community of support, empowering them to stay in school and achieve in life (CIS, 2018)."

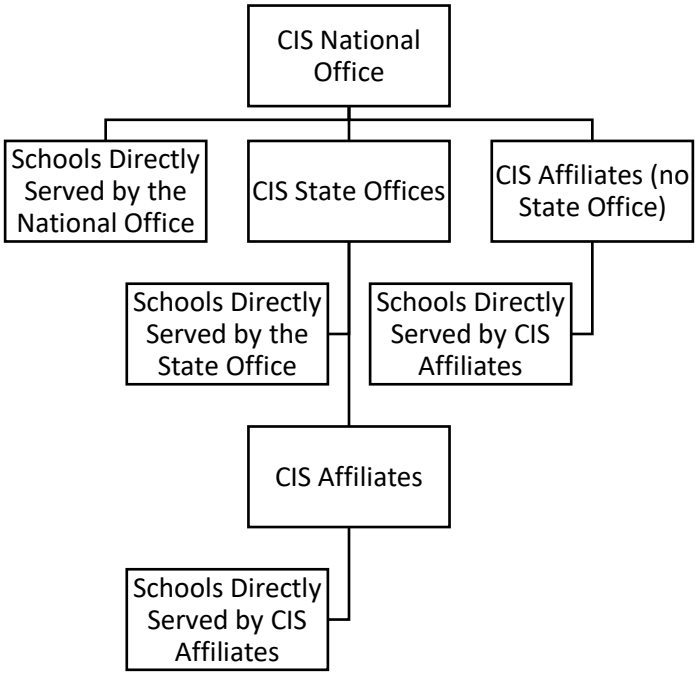
The CIS model works by placing a trained site coordinator in partner schools to serve schools, students, and families through a tiered model of student support. CIS's model of Integrated Student Supports serves students in two ways: through school-wide supports and site coordination and by working intensely with individual students through case management.

The CIS Model

Before describing the site coordination and case management components of the CIS Model, I offer an overview of the organization's structure. As shown in Figure 1, there is a CIS national office, CIS state offices, and many more CIS affiliates, which are independent 501(c)3 organizations. While it is typical for CIS affiliates to directly serve schools by implementing the CIS model, it is becoming more common for the CIS national office and CIS state offices to work with districts and schools in areas that cannot sustain a non-profit organization to build capacity to implement the CIS model locally. While the role of the affiliate is often to develop relationships and manage CIS sites in the community, the role of the national and state offices focuses more on setting standards, training, technical assistance, and capacity building.

Figure 1.

CIS Organizational Structure.



Through 21 independent affiliates, CIS is present in 44 school districts and nearly 300 schools across North Carolina and serves nearly 170,000 students through case management and/or schoolwide supports. CIS affiliates partner with districts and/or school leadership to secure funding (e.g., Title I, grants, fundraising) to hire and train site coordinators who implement CIS' model of Integrated Student Supports in schools. CIS works with schools, partners, and community members to deliver schoolwide and individualized, student-focused supports to meet students' academic and non-academic needs.

For both site coordination (i.e., school support planning) and case management (i.e., student support planning), site staff work through a similar process of assessing the needs of the school and case-managed students; planning supports to be delivered; delivering the supports;

monitoring and adjusting supports based on data; and evaluating whether the school and case managed students are meeting their goal(s). All schools implementing the CIS Model, regardless of the affiliate, are required to engage in both site coordination and case management and implement the core components of those activities (i.e., needs assessment, plan, deliver/broker supports, monitor and adjust, and evaluate). However, local affiliates can make adaptations to how they do it. For example, some affiliates might lean more on direct service if there are fewer partners in the community. Similarly, like in the case of the affiliate engaged in this evaluation, they might have staff focus on specific outcomes or students with specific needs.

Site Coordination

To begin the school support planning process, the site coordinator completes a school assessment whereby (s)he collects school-level and community data from the school and searches publicly available databases; interviews school staff, parents, community members, partners, and students; conducts a document review of the school improvement plan and other school documents; observes how students interact with teachers and the school environment; and determines the most pressing needs to be addressed by CIS. CIS site staff then collaborate with school leadership to set CIS' school-wide goals. The school assessment process culminates in the creation of a School Support Plan that lists the types of supports to be provided in order to accomplish the school-wide goal(s). The site staff also guides the implementation of the CIS model at the school level for that school year. Once the School Support Plan is established and implemented, the site coordinator(s) monitors school metrics that are aligned to goals every grading period. At the end of the year, the site coordinator determines whether CIS met its goals for that year and reports results to school administration.

Case Management

Much like site coordination, the CIS model of case management involves conducting an individualized student needs assessment, developing a Student Support Plan, enacting the Student Support Plan by delivering or brokering tiered supports, monitoring progress and adjusting support plans at a frequency dictated by each student's level of need (i.e., monitoring the progress of students with a higher level of need more frequently), and evaluating whether student goals were met at the end of the year.

In conjunction with the School Support Team, the Student Support Specialist identifies students who are "at-risk" of academic failure or dropping out. Across CIS, there is no consistent profile for identifying students; thus, "at-risk" is a flexible designation because it can mean different things to different schools and site staff. For example, a student with an F may be "at-risk," but a student with good grades and two suspensions may also be "at-risk." However, affiliate leadership can often set priority criteria based on the local education context. For this study, the affiliate focuses on students at-risk of dropping out, who are identified as those attendance and behavioral challenges (based on suspensions) and those not performing at grade level on End of Grade/course (EOG/EOC) tests.

Once students are identified as potentially benefitting from participating in CIS, parental consent is obtained before CIS can serve the student and access their data. When a signed parent consent form is returned, the student starts receiving services, starting with an individualized needs assessment. If parent consent is not received after multiple attempts by staff to reach out, the student does not receive case managed support from CIS. CIS currently does not have any data in terms of what percentage of parents refuse or deny service for their student. Students who are 18 years old are able to consent themselves.

There are two essential elements of the CIS model. First, case management intensity refers to whether case-managed students are moderate or high intensity–a determination that, according to the CIS Model, should be made based upon a student's needs. Case management intensity should influence the frequency and dosage of supports as well as the frequency of monitoring of student data. Second, school and student data should be used throughout the implementation of the CIS Model, but beyond quarterly progress monitoring, there is no expectation that data be collected and used more frequently. While implementation standards exist and set a minimum standard of monitoring progress quarterly, this standard may not be sufficient for students with a higher level of need. As long as the standards are met, CIS staff in schools are expected—but not required—to serve students differently based upon their needs (e.g., students with more intensive needs are provided more support in group or individual settings).

Tiers of Support

Much like other school-based models implemented to meet the academic and behavioral needs of the school in addition to its students and families (e.g., Positive Behavior Interventions and Support, Response to Intervention, Multi-tiered System of Supports), supports provided through the CIS model are categorized to be either Tier 1, Tier 2, or Tier 3:

- Tier 1: supports that target a school-wide need delivered to a large group of students.
- Tier 2: supports delivered to groups of students with a common need.
- Tier 3: supports delivered to individual students with specific needs.

While CIS delivers and brokers Tier 1 supports targeting school-wide needs and are available to large groups of students, Tier 2 and Tier 3 supports are typically provided to students who are case-managed by CIS.

Furthermore, as long as core model components are implemented, CIS affiliates are able to be innovative in their service delivery. While this allows for affiliates to potentially better meet the needs of families and students in their community, it also reduces replicability and the ability to consistently evaluate programming across affiliates. From an evaluation standpoint, this makes generalizing the results from one study or evaluation of CIS difficult. The affiliate being evaluated in this study implements all the components of the CIS Model but differentiates the support provided to students, realizing that staff's skills should match the needs and types of students being served. Instead of only having one Student Support Specialist in schools like most affiliates, it places multiple Student Support Specialists implementing the CIS Model in a single school. It is the only affiliate that uses such a model. The positions vary in terms of the number of students that are carried on the caseload; the level of need of the students; how much support is required to address or meet the needs; and the outcomes that the position is held responsible for. The positions and focus points for students on their caseloads are:

- Intensive Case Manager - Intense attendance concerns, behavioral issues, academic concerns, and/or family matters
- Check and Connect Coordinator - Moderate attendance concerns, behavioral issues, academic concerns, and/or family matters
- Youth Development Coordinator - Mild attendance concerns, behavioral issues, academic concerns, and/or family matters
- Educational Career Coach – Limited attendance concerns and behavioral issues, good academic standing, and/or few family matters

Importance of Partnerships

A core component of the CIS model is engaging partners and volunteers to support identified school and student needs. CIS attempts to develop partnerships in order to bring agencies and supports into the school environment that CIS would otherwise be unable to provide. In most cases, the affiliate establishes partnerships with local agencies that provide basic needs, mental/behavioral health services, and services related to student/family safety, among others, that schools can tap into if a need presents itself (e.g., social services, food banks, clothing providers, and mental health providers). Utilizing partners and volunteers ensures that the capacity exists to meet the ongoing needs of schools, families, and students.

Funding

Typically, CIS operations are funded by some combination of government (local, state, federal) funds, grants, donations, and school district money. Thus, CIS affiliates often operate primarily on soft money, meaning that if funding cannot be sustained, services cease. Depending on the size of the community and affiliate, the responsibility of fundraising and grant writing may fall on the Executive Director. Very few affiliates have a staff member who is dedicated solely to resource development. There are opportunities, however. With the passage of the Every Student Succeeds Act (ESSA), CIS' model of Integrated Student Supports is eligible to receive Title I funds from districts and schools, yet CIS has struggled to transition from being seen not as a charity but as a service provider.

CIS Logic Model

Logic models operationalize how a program will work to achieve the intended result and typically include seven components, all of which build upon each other to give the audience an easy understanding of what the program requires from beginning to end in order to operate,

including the main activities associated with implementation of the program. The seven components of a logic model are (Kellogg, 2001):

1. Inputs – financial, human, organizational resources
2. Activities – what happens
3. Outputs – interaction between activities and participants

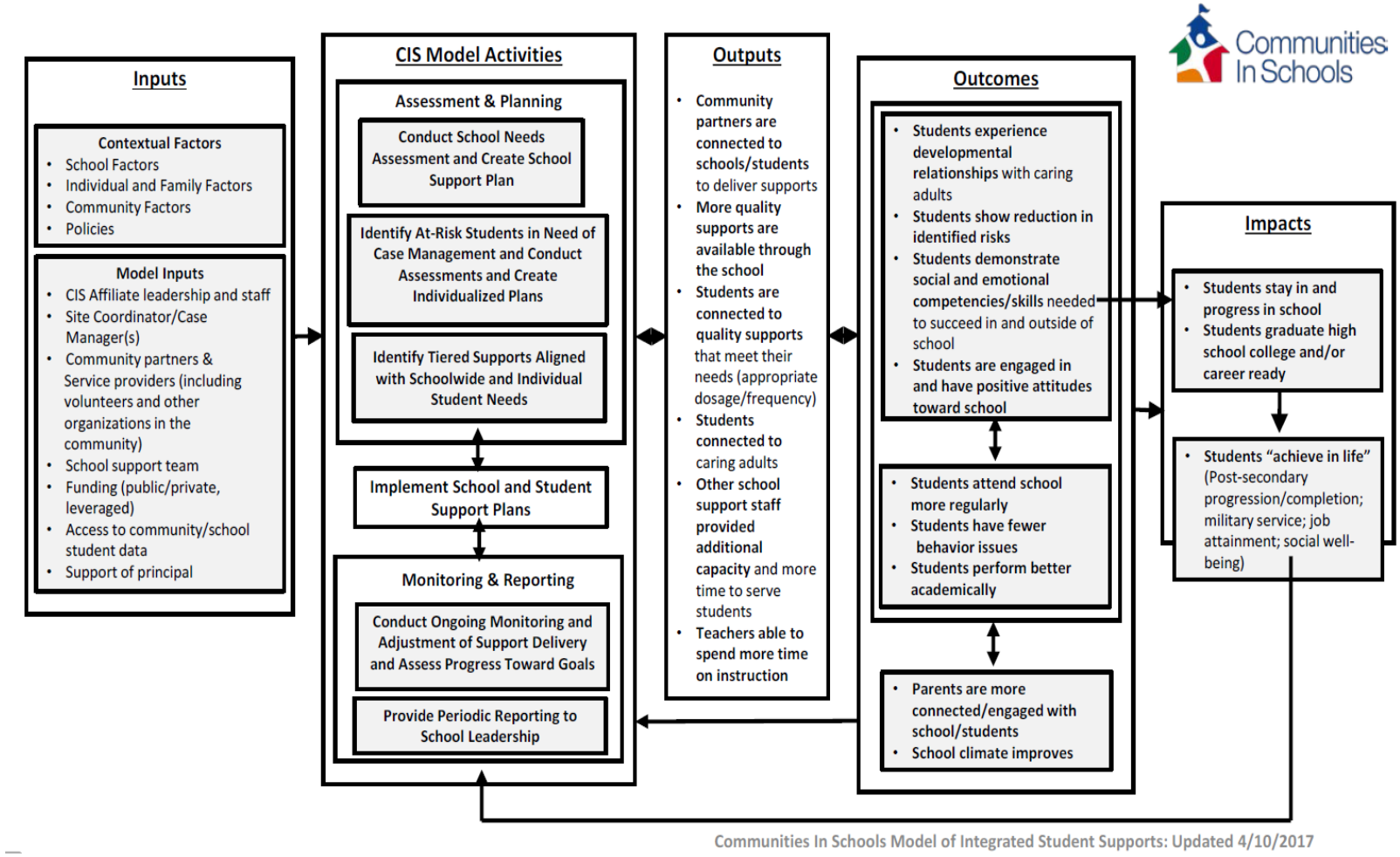
   Outcomes – intended positive results

4. Short-term (0-1 years)
5. Medium-term (2-4 years)
6. Long-term (4-6 years)
7. Impact (7-10)

The CIS logic model is displayed in Figure 2.

Figure 2.

CIS Logic Model. Communities In Schools, 2017.



CHAPTER 2: LITERATURE REVIEW

Theoretically, student engagement is the foundation to academic success. When students are not engaged, they are less likely to attend school, more likely to behave poorly, more likely to fail academically, and more likely to drop out. The act of dropping out is a complex issue with many underlying causes, but it is often predictable who is at risk of becoming a dropout. For example, it stands to reason that students who are disengaged will not regularly attend school; if they do not attend school, they will not pass; if they do not pass core classes, they will struggle to graduate on time. In this chapter, I first review the relevant literature relating to the relationships between student engagement, absenteeism, academic achievement, and dropping out versus on-time graduation. Then, I discuss what is known about the effectiveness of the Communities In Schools (CIS) model. Finally, I conclude this chapter by talking about the gaps in knowledge related to the effectiveness of the CIS Model.

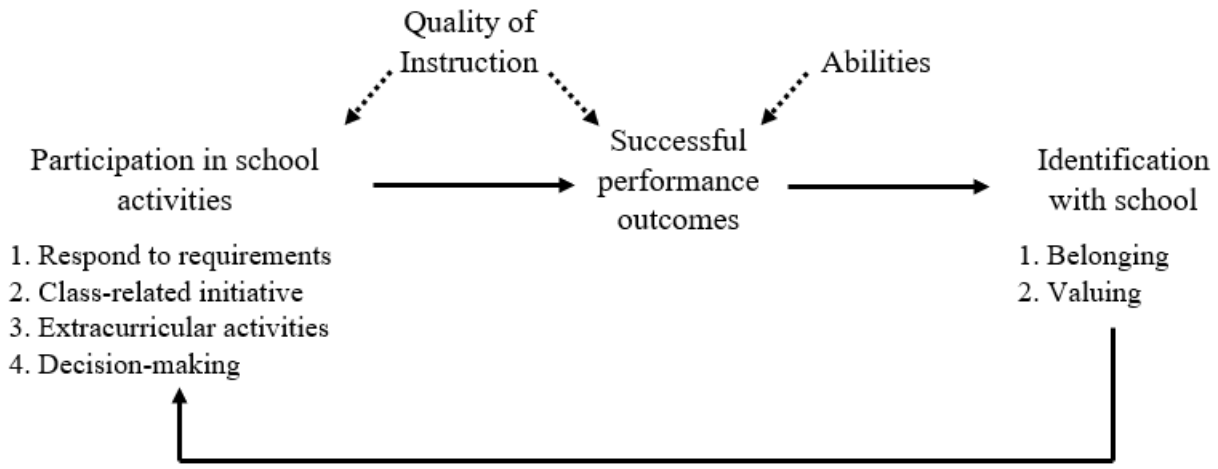
Student Engagement

Research has long found evidence to support the theory that the act of a student's dropping out is rarely the result of a single event; rather, students drop out as a result of a process of disengagement from school (Finn, 1989; Rumberger, 1987). A theoretical model that exhibits this interaction is Jeremy Finn's (1989) Participation-Identification Model. As seen in Figure 3, Finn proposes that student achievement is a function of students' participation in and identification with school. When students are behaviorally (i.e., they attend and behave), academically (i.e., they participate in class), and cognitively (i.e., they see school as important) engaged, they are more likely to succeed academically, assuming they have the ability and high-quality instruction. When they perform well, they become affectively engaged, which means they identify with school and feel like they belong. The process is cyclical in that the more

students participate, achieve better academic outcomes, and identify with school, the more they will continue and increase their participation, thus achieving better outcomes, and so on.

Figure 3.

Finn's (1989) Participation-Identification Model.



The study of student engagement has taken many forms, including the investigation of a combinations of affective/emotional engagement, cognitive engagement, behavioral engagement, academic engagement, and social engagement. Models of student engagement range from a two-dimensional approach to a multidimensional engagement model such as that proposed by Finn (1989). Finn's model encompasses participation (behavioral engagement) and identification (affective/emotional engagement) in a three-dimensional approach; a similar model is also used by Fredricks and colleagues (2004) and includes behavioral, emotional, and cognitive engagement. A four-dimensional approach to student engagement such as that by Appleton and colleagues (2006) includes factors of academic, behavioral, cognitive, and affective/psychological engagement. Finn and Zimmer (2012) explain how difficult it can be for

researchers and practitioners to compare so many models, stating that "different terminology makes comparison difficult." The fact that there is no common definition for each of the dimensions of student engagement makes a universal understanding of the dimensions of student engagement and the actions that fall within each one difficult. For example, many see behavioral engagement as being a manifestation of "softer" forms of engagement (e.g., cognitive and affective/emotional). In the following section, I will discuss the different types of student engagement identified in the literature.

Affective/Emotional

Affective or emotional engagement can be characterized by understanding students' connections to the school, staff, and other students, as well as students' interest in and attachment to school. Fredricks and others (2011) summarized the definition of affective engagement "to include feelings of belonging, enjoyment, and attachment" to school. Finn and Zimmer (2012) add that students who are affectively engaged feel that they are a part of the larger school community and understand the value of learning at school to being successful during out-of-school time. It would seem to reason that school staff, peers, and school climate play a prominent role in establishing affective or emotional engagement.

Cognitive/Psychological

Cognitive engagement is the psychological connection a student has to school and learning. Fredricks and colleagues (2004) suggest that cognitive engagement has been operationalized in two ways: although similar, the first definition is more general in scope, focusing on whether students are psychologically invested in learning, but only to the extent that students are engaged in learning. The second definition goes deeper into qualifying student engagement, describing the quality and types of students' non-academic engagement—

psychologically, students who are cognitively engaged welcome challenges and desire to go above and beyond what is required of them academically. Reschly and Christenson (2006), on the other hand, see the cognitive and psychological components as distinct, or separate, dimensions of student engagement.

Behavioral

Behavioral engagement refers to student behaviors that indicate a student's attachment to school. Fredricks and colleagues (2004) have described behavioral engagement as having three subtypes: (1) behaviors that are related to acting in a way that does not disrupt the school environment; (2) behaviors related to learning and participation in class; and (3) actions indicating participation in school events. The first subtype includes behaviors such attending school regularly and following school rules. The second reflects behaviors that align with a student's demonstration of active learning such as asking questions, participating in class discussions, and demonstrating effort and persistence. The final category of behaviors is related to a student's participation in academic and non-academic school activities, such as participating in clubs and attending football games.

Academic

Finn and Zimmer (2012) describe academic engagement as "the behaviors related directly to the learning process." Some researchers have had a hard time separating academic engagement from behavioral engagement and see academic engagement as being manifested through evidence of student's behavioral engagement (Finn & Zimmer, 2012; Fredricks, 2004). However, others, such as Reschly and Christenson (2006) see academic and behavioral engagement as two separate, distinctly observable constructs. Whereas academic engagement specifically refers to a student's time-on-task, behavioral engagement refers to actions that

indicate engagement or disengagement such as attending school and class and participation in school-related events/activities.

Social

Social engagement has been understood to be a form of behavioral engagement and has been shown to be a moderator between indicators of academic engagement (attentiveness and assignment completion) and achievement (Finn and Zimmer, 2012). Social engagement appears to be manifested in students in two ways: by following social norms and having positive social interactions. The first, social norms, is related to following widely understood classroom and school rules that may not be explicitly stated. Social interactions refer to being positively engaged in relationships with teachers and peers, or feelings of belonging.

Engagement takes many shapes and forms (e.g., beliefs about a student's own self-efficacy, attending school, and participating in class and school activities), some of which are more easily measured than others. Often, administrative data collected by schools are used as proxies of engagement. For example, attendance at school could, among other things, indicate the extent to which a student sees school as important. Either way, there are many studies that link a student's engagement to school and important outcomes such as academic success, dropping out, and completing school (Balfanz et al., 2007; Bridgeland et al., 2006; Bruce et al., 2011; Hammond et al., 2007; Fall & Roberts, 2012; Fredricks et al., 2004; Reschly & Christenson, 2006; Rumberger & Lim, 2008.

Correlates of Academic Achievement and School Completion

School Attendance

If students are not at school, they struggle to stay on-track in the classroom. While students do miss important instructional time when they are absent, the type and timing of their

absences also matters in terms of how they impact achievement. Balfanz and Byrnes (2012) suggest absences can be classified as cases (1) where students cannot attend school because of some external factor(s); (2) where students will not attend school because of school safety or climate; or (3) where students do not attend school because of a low value of education. Absenteeism is often measured by the number of tardies (showing up late), the number of absences (missing a school day), or chronic absenteeism (missing 10 percent or more of the days in a school year).

As early as elementary school, attendance rate is a predictor of a student's academic outcomes, even when controlling for other factors (Bruce et al., 2011; Gershenson, Jacknowitz, & Brannegan, 2017; Gottfried, 2011). Multiple studies have found that absences and chronic absenteeism typically declines from kindergarten to the 4th grade (Balfanz & Byrnes, 2012; Morrissey, Hutchison, & Winsler, 2014), but the persistent detrimental effects of absenteeism on learning remain. Chronic absenteeism negatively impacts the academic achievement of those students as well as the other, more consistently present students in classes with high rates of chronic absenteeism (Gottfried, 2015). Additionally, at what point in the academic year a student misses school is important, as timing changes the negative effect of absenteeism. Gottfried and Kirksey (2017) found that regular attendance is even more important in the 30 days before a state test, and that absences prior to a state test impact math achievement more than reading achievement. In all, absences in elementary school contribute to continued achievement gaps throughout a student's primary and secondary years of education (Balfanz & Byrnes, 2012).

It should be no surprise that chronic absenteeism becomes more prevalent in middle and high school, as students have more influence and autonomy over whether they attend school. As in the early grades, Gottfried (2010) found that "students with higher school attendance, attain

higher educational outcomes in terms of both GPA and standardized testing." Additionally, multiple studies have found that absenteeism as early as in the 6th grade can increase the probability that a student will drop out (Balfanz, Herzog, & Mac Iver, 2007; Barge, 201; Ginsburg, Jordan, & Chang, 2014). For example, a study conducted by the State of Georgia (2011) found that only 53% of students who missed 11-14 days of schools in the 8th grade went on to graduate.

While number of absences is related to low course performance, attendance rate is also indicative of other barriers students may be facing; for example, chronically absent students may be facing challenges at school that prevent them from attending and give them no choice. Regardless of the academic supports provided, if the root causes of the student's absenteeism are not identified and addressed, there is little hope that their academic performance will turn around.

Academic Achievement

Student academic performance and completion are the most obvious predictors of school completion and post-secondary enrollment and success. Yet, academic or course performance is also one the hardest of the school-based indicators to address because of the number of possible factors that influence achievement (e.g., school and teacher quality, student effort, previous understanding of content). Students who start kindergarten academically behind often stay behind; in fact, a study commissioned by the Annie E. Casey Foundation (2011) found that "one in six children who are not reading proficiently in third grade do not graduate from high school on time" (p. 6). The 3rd grade is seen as a pivotal year because it is generally when students transition from "learning to read to reading to learn" (Balfanz, Herzog, & Mac Iver, 2007). Additionally, a student's failing math or English in the 6th grade also predicts whether they

graduate on time or at all. One study showed that only 13% of students who failed math and 12% of students who failed English in the 6th grade graduated on-time (within four years of starting high school) (Balfanz, Herzog, & Mac Iver, 2007).

Furthermore, a student's performance in the 9th grade has also been found to be highly predictive of dropping out. Allensworth and Easton (2007) found that, in general, as a student's GPA increased or number of 9th grade course failures decreased, their chances of graduating increased. For example, 72% of students with a 2.0 (or C average) graduated in four years, while only 55% of students with two semester course failures in 9th grade graduated in four years. When a student fails a class, they fall behind on the number of credits they have earned compared to what is necessary to graduate, thereby requiring them to make up the failed class without failing any additional classes.

Predictors of School Dropout

The act of dropping out has been described as a process more than an event (Hammond et al., 2007; Rumberger & Lim, 2008) and as "a slow process of disengagement over time" (Bridgeland et al., 2006; Bruce et al., 2011). Historically, reasons for a student's dropping out have been classified into two categories: individual (background, educational performance, behaviors, and attitudes) and institutional (family, school, and community) (Rumberger & Lim, 2008). Furthermore, some researchers propose that poor attendance, behavior, and course performance are indicators, or even predictors, of the disengagement process at work (Balfanz et al., 2007; Bridgeland et al., 2006).

In a review of the literature on dropout risk factors, Hammond and colleagues (2007) found that many factors considered to be manifestations of student engagement were found to positively predict dropping out. Attendance in elementary, middle, and high school; low

education expectations in middle and high school; low commitment to school in high school; and no extracurricular participation were found to be significantly related to high dropout rates (Hammond et al., 2007). Lack of effort in middle and high school, low commitment to school in middle school, and no extracurricular participation in middle school were found to be significantly predictors of a student's dropping out as well (Hammond et al., 2007). While only attendance predicted dropouts all the way from elementary school, elementary schools often don't get support because the focus on dropout prevention has been at the middle and high school levels.

Another study of predictors of dropout status by Zablocki and Krezmien (2012) analyzed two years' worth of data related to disability status, demographics, and academic experiences of over 5,000 students ages 13-17 to determine whether any of those factors led students to be more likely to dropout. Included in the analyses was an emotional engagement variable that was created by grouping survey questions that have been identified as being indicators of emotional engagement. Results indicated that controlling for disability status, demographics, and other academic experiences (i.e., retention, suspension, and grades), students with higher emotional engagement were 27% less likely to dropout than their less emotionally engaged peers.

An example of the predictive nature of student engagement at the high school level is illustrated in Fall and Roberts' (2012) study of the relationship among three variables tied to dropping out: social context, self-perceptions, and school engagement. Using data from the 2002-2004 Education Longitudinal Study, Fall and Roberts analyzed data on a cohort of 14,781 10th graders and their dropout status two years later, finding a negative relationship between both academic and behavioral engagement on the likelihood of dropping out. That is, as students' academic and behavioral engagement increase, their likelihood of dropping out decreases.

There is also evidence that engagement is a potent predictor of a student's likelihood of dropping out regardless of whether or not the student has a learning or emotional/behavioral disorder. In a study using data from the National Educational Longitudinal Study, Reschly and Christenson (2006) found that after controlling for variables associated with dropping out (i.e., test score, retention, and socio-economic status), "student engagement variables were significant predictors of school dropout and completion for students with learning disabilities (LD) or emotional and behavioral disabilities (EBD) and students without disabilities." For students with emotional and behavioral disabilities, skipping classes (an indicator of behavioral engagement) was related to a significant threefold increase in a student's odds of dropping out. For students with learning disabilities, skipping classes and having behavioral problems were the strongest engagement-related predictors of dropping out, corresponding to a two-fold and 45% increase in odds of dropping out per one unit increase in skipping and behavioral problems, respectively. Finally, boredom (28% increase in odds of dropping out), absences (51% increase in odds of dropping out), and behavioral problems (49% increase in odds of dropping out) were the most salient predictors of dropping out for students without disabilities.

Lee (2014) conducted analyses using data on over 3,000 high school students from the Program for International Student Assessment to understand the effect of behavioral and emotional engagement on reading scores, accounting for race, socioeconomic status (SES), and language spoken at home, among other variables. Behavioral engagement was operationalized as self-reported effort and perseverance, while emotional engagement was defined as "sense of belonging." He found behavioral engagement partially mediated the effect of emotional engagement on reading performance. However, both emotional and behavioral engagement were significantly and positively related to reading scores, meaning that students with higher levels of

emotional and behavioral engagement had significantly higher reading scores than students with lower levels of the two types of engagement.

While the impact of dropping out on individual students is of primary concern, the economic necessity of not only getting students to the finish line of graduating but helping them figure out their next steps cannot be overstated. Being encouraged to take a slightly different trajectory towards what is on the horizon for at-risk students beyond high school can mean all the difference in successful outcomes, especially when considering costs to taxpayers, the government, and the community. Sum and colleagues (2009) found that the lifetime fiscal burden of a student dropping out as opposed to graduating high school on taxpayers exceeds $292,000 – a number that increases significantly if the student who would have dropped out attains some post-secondary education. Similarly, when looking at the fiscal and social costs related to a student dropping out, Belfield, Hollands, and Levin (2011) found that the lifetime social and economic impact of a high school graduate compared to an individual with a bachelor's degree is almost $550,000 and $2,000,000 greater than that of a dropout, respectively. Thus, it is an economic necessity for schools to find ways to prepare students for a career or college, as doing so is a way to increase students' social and economic mobility.

Economic mobility is a function of high school graduation, and subsequent college enrollment, entering the workforce, or enlistment in the military. Students who are engaged and attend school regularly and achieve are more likely to graduate (Balfanz et al., 2007; Bridgeland et al., 2006; Hammond et al., 2007; Rumberger & Lim, 2008). CIS partners with schools to support students to remove barriers to attending school and has conducted multiple evaluations of its work with mixed results.

Communities In Schools Evaluations

To-date, evaluations of the CIS model have been mixed. The three published evaluations of the CIS model or components of it are covered below.

ICF International - 2010

ICF International (2010) evaluated CIS programming before CIS National made updates to expectations related to how the CIS model is implemented. Even so, ICF conducted analyses at the school (quasi-experimental design) and student (randomized control trial) levels. The school-level quasi-experimental design (QED) utilized optimal matching and found that schools that implemented CIS had significantly higher (>.25 effect size) higher graduation rates, lower dropout rates, elementary attendance, and middle school reading and math. Importantly, the study also found that schools where CIS implementation was considered to be with a high degree a fidelity had better outcomes than schools where the model was implemented with low fidelity. The student-level randomized controlled trial was conducted at three CIS affiliates and analyzed data for two years of impact (baseline, year 1, year 2). Year 1 results indicated that effects varied based on location. For example, the RCT in Jacksonville on middle school students found that CIS had a statistically significant ($p<.05$) effect on middle school reading – grade retention and middle school reading had effect sizes above .25. The RCT in Austin, which included high school students, found that CIS significantly ($p<.05$) improved student credit completion, attendance, and GPA – all of the previous and dropping out had effect sizes above .25.

MDRC - 2017

In 2017, MDRC conducted an evaluation of the impact of the CIS model on school and student outcomes over a 2-year period (Parise et al., 2017; Somers & Haider, 2017). Somers and Haider (2017) evaluated the impact of the CIS Model on school-level outcomes (attendance, test

scores, graduation and dropout) using a comparative interrupted time series design (CITS) and found that CIS schools improved graduation and dropout rates and elementary attendance rates. Parise and colleagues (2017) utilized a randomized control trial to examine the impact of CIS on student-level middle and high school outcomes and found that CIS impacted school engagement and the rates at which students reported being connected to a caring adult and positive peer relationships. No significant relationship was found between CIS participation and participation in extracurricular activities and educational goals/expectations, and the authors concluded that "it cannot be concluded that CIS case management improved students' attendance, course performance, or behavior." The effect sizes for chronic absenteeism, failing at least one course, average attendance rate, number of suspensions, and average core course marks ranged from -.06 to .11.

Mathematica - 2019

Hallgren and colleagues (2019) conducted an evaluation of a comprehensive school turnaround strategy (grades K-6) implemented by Atlanta Public Schools. Part of the turnaround strategy was introducing a part-time CIS staff member to support students' non-academic needs in struggling schools. The study authors used propensity score matching to match students who received CIS case management to students who did not based on "prior test scores, attendance, and suspensions, and similar demographic characteristics" (Hallgren et al., 2019). The analyses indicated that students who participated in CIS did not significantly outperform the students who did not participate in CIS on their likelihood of being chronically absent and suspended, as well as ELA and math test scores. When comparing CIS students over time, the percent of students who were suspended increased and percent who were chronically absent decreased, but not significantly so. However, using the results of the evaluation in conjunction with feedback

around implementation from stakeholders, Mathematica recommended that CIS staff become full-time, CIS focus on preventing staff turnover, and that data be collected on the other non-CIS academic and non-academic supports to better understand what supports students are receiving. No effect sizes were reported in this study.

Summary

Except for the most recent evaluation in Atlanta, previous CIS evaluations have included sites from various cities across the country. Each evaluation cites factors related to implementation quality and consistency as a potential barrier to achieving CIS' intended results. This evaluation goes a step further by incorporating learnings from the previous evaluations, but also by examining the impact of an innovation to the CIS model in a single affiliate, serving a single school district. The CIS program built a model to go deeper with students and better match the frequency and intensity of support to each student's level of need. This warrants investigation given that two of the evaluations mentioned that the lack of individual student supports could be problematic (Hallgren et al., 2019; Parise et al., 2017). Furthermore, because of the cost and limitations related to conducting a randomized controlled trial, the use of propensity score matching in previous evaluations support my use of propensity score matching as a methodology to examine causal effects. Chapter three will detail the methodologies used in this study of the impact of CIS case-management on students' outcomes.

CHAPTER 3: METHODOLOGY

The "gold standard" of research design is a randomized controlled trial in which the unit of analysis, such as an individual, person, or school, is randomly assigned to one or more experimental groups (i.e., those that receive the treatment or participate in the program) or a control group (i.e., those that do not receive the treatment or participate in the program). By randomly assigning participants to conditions, it can be assumed that the group(s) receiving the treatment (experimental groups) and the group not receiving the treatment (control groups) are similar in their characteristics, and, thus, post-treatment, any differences in the outcome of interest can be attributed to the treatment or program rather than preexisting differences between the groups. However, randomization as an evaluation technique is often difficult, costly, and at times unethical, especially for programs that have defined eligibility criteria (Rossi, Lipsey, & Henry, 2004).

As a result, in observational research and applied evaluation, researchers must often look to quasi-experimental ("as-if random") methods that have the goal of reducing the likelihood of a biased effect when random assignment is not possible. This study uses Rosenbaum and Rubin's (1983) approach to using propensity scores for observational studies to examine the impact of Communities In Schools (CIS) programming on student outcomes related to student attendance, behavior, and academics. Although there are better statistical analyses to estimate the causal impact of programs (e.g., difference in difference and regression discontinuity) and limitations to propensity score analysis, given the quasi-experimental design of this study and the nature of the data collection, the decision was made to use propensity score analysis with inverse probability weights (to help increase the likelihood that the treatment and control groups are similar on variables that predict service by CIS) for the following reasons:

1. The CIS theory of change/program model does not lend itself well to randomization. Students are referred to CIS because they have some academic, behavioral, or social need that CIS is positioned to address. Furthermore, after being identified, a student's parent or guardian must sign a consent form to allow CIS to serve their student. Randomization of qualified students is not possible due to ethical concerns related to withholding treatment from an individual who would benefit from the treatment or who could potentially be harmed by not receiving treatment.
2. Other methods that are sometimes used to determine causal effects, such as regression discontinuity, are also ill-suited for an evaluation of CIS because CIS does not use cut points to establish eligibility (which are required for such analysis), nor does it use an early warning system or similar model to identify students; rather, CIS attempts to serve only the students with the highest risk of dropping out.

Data and Sampling

This study uses administrative data representing students in a large metropolitan school district in the southeastern United States. The nature of the study required at least three years of data. Data from the 2016-17 school year were used in the treatment model for the analyses the examining the impact of being case-managed by CIS in the 2017-18 and impact of being case-managed by CIS in both the 2017-18 and 2018-19 school-year. Furthermore, the 2017-18 data were used in the treatment model exploring the impact of being case-managed by CIS only in the 2018-19 school year. Depending on the model, the 2017-18 and 2018-19 school years were used to examine differences in outcomes between students served by CIS and students not served by CIS.

CIS began fully implementing a new differentiated services model in the 2017-18 school year. Thus, for students to be included in the analyses, students must have had data for all three school years: 2016-17, 2017-18, and 2018-19. Given that the outcomes of interest are related to attendance, behavior, achievement in high school, and drop out, the sample includes only students who were in enrolled in high school in the 2017-18 and/or 2018-19 school years.

Additionally, in schools where CIS operates, CIS provides school-wide and individual student supports/case management. It is possible that the schoolwide supports and improvements for case-managed students could lead to spillover improvements for students attending the school with a CIS presence but are not served by CIS in a case-managed capacity. For example, a CIS-implemented school-wide attendance strategy could benefit all students attending the school—not only those who are case-managed by CIS. The impact of such a benefit could lead to underestimating any treatment effect. Instead of grouping all students in the district into one comparison group, and to account for spillover effects when creating comparison groups, two comparison groups were created: a within- and between-school comparison group. The within-school comparison group created a comparison group of only the students who attended schools served by CIS, whereas the between-school comparison group was of students who did not attend schools served by CIS.

Procedure for Obtaining and Organizing Data

The evaluation utilized secondary data obtained from CIS and the North Carolina Education Research Data Center (NCERDC). Parents or guardians signed written consent for their student to participate in CIS programming and for CIS to access their student's data for evaluation purposes. Data were requested and received from the North Carolina Education Research Data Center (NCERDC) at the Center for Child Family Police at Duke University. The

NCERDC stores and manages longitudinal school, teacher, and student data for the North Carolina Department of Public Instruction (NCDPI). The NCERDC requires strict confidentiality and data security measures to prevent the unauthorized release of student information. The NCERDC provided academic data for both participating and non-participating students. However, because parent consent is in place, data used for the treatment and outcome models for students participating in CIS could be matched with programmatic data provided by CIS.

The NCERDC released two sets of data files: (1) a set of de-identified data files reflecting student demographics, attendance, test scores, drop out, graduation, and GPA, by year; and (2) a merged data file containing the CIS student programmatic data and an ID (Master ID) that linked CIS students to the aforementioned data files. The NCERDC master ID (Mast ID) is consistent across all NCERDC data files and allows for the merging of student information across data files and years.

Obtaining data from the NCERDC involved three steps. First, a master list of CIS participants in the target district was created and submitted to the NCERDC. The master list of students served by CIS contained Student IDs and other demographic information, as well as implementation/programmatic data (e.g., number of supports/hours received). This data file was shared with the NCERDC through Duke University's Virtual Private Network (VPN). The file accessed by the NCERDC contained identifiable data (i.e., student ID, first and last names, date of birth, and implementation data) for CIS students. Second, the NCERDC team matched each CIS student to the NCERDC master ID utilizing the Student ID. NCERDC created customized de-identified datafiles that linked the educational data from NCERDC files to the students in the CIS file, coded students as CIS or not, and sent a file back to the researcher that is stripped of all

CIS identifiable data, providing a unique ID only (NCERDC MastID) and CIS implementation data.

The returned data files included all students in the school district being served by CIS; CIS implementation data were merged after they were received. While the data were separated by indicator (e.g., demographics, attendance, test scores, and drop out), they were received with a separate file for each year. Therefore, each set of files had to be appended before merging them into the final dataset. In order to merge the files containing the three years of data for each indicator, duplicates had to be remedied. In some cases, such as attendance, students with duplicate rows were dropped. In others, such as suspensions, where each row was an incident, the rows were collapsed by student ID to create a total number of short-term suspensions and days suspended. Finally, data were checked for outliers and to ensure variables were consistently coded to create a dataset that was used to begin to create each analytic sample.

Outcome Measures

The outcome measures in this study are related to student attendance, behavior, grade point average, End of Course high school tests, and dropout for the 2017-18 and 2018-19 school years. The primary analysis includes only students who were served both years; in addition, additional analyses were conducted to determine whether a dosage effect exists between students who were served for one versus two years.

Attendance

Attendance is measured by calculating an attendance rate and whether the student was chronically absent. Utilizing only the number of absences could be misleading because it does not take the number of days the student was enrolled at the school into account. The attendance rate was calculated by dividing the number of days present by the number of days enrolled

(membership) at the school. Unlike the number of absences, the attendance rate accounts for the length of time the student was enrolled at the school. A student was considered chronically absent if they had an attendance rate below 90%. Typically, previous studies focused on either attendance rate or chronic absenteeism, but not both. Both were included in outcomes for this evaluation because they capture distinct concepts. While attendance rate is a continuous measure and captures the rate of change, however small, chronic absenteeism is a dichotomous variable based on a pre-determined cut-point that research indicates is linked to increased probabilities of dropping out (Balfanz et al., 2007).

Behavior

Student behavior is measured by the number of short-term suspensions and number of days of out-of-school suspensions a student received during a given school year.

Grade Point Average

The cumulative, unweighted and weighted Grade Point Average (GPA) in a student's senior year is used as an indicator of academic achievement. GPA can be a more consistent and reliable measure of academic achievement than core course grades or End-of Course tests because it reflects grades received over time, as opposed to performance at one point in time.

End of Course Tests

North Carolina students take End of Course tests at the end of certain courses in high school. This study used standardized English II, Math I, Math 3, and Biology End of Course test scores as an indicator of academic achievement. Standardized tests were standardized within course and school year.

Dropout Status

For this study, a student was considered to have dropped out if the district reported them as a dropout. For the one-year analyses, dropout was examined in the year of service (2017-18 or 2018-19). For the two-year analyses, dropout was examined only in the second year of case-management (2018-19) to fully understand the impact of two years of case-management. Students who dropped out in their first year of service and were case-managed by CIS would have been included in the one-year samples. Students would not have been included in the two-year analyses if they dropped out in year 1 (2017-18) because they would not have had outcome data for year 2 (2018-19). No additional restrictions related to dropout status were placed on the treatment or comparison group in terms of students included or excluded from the analyses.

Propensity Score Analysis

Propensity score analysis involves using a set of variables to assign each observation/participant a propensity score, which is the probability of having received some treatment or program, and then creating a treatment and comparison group based on the individual's probability of being included in the treatment group. Rosenbaum and Rubin (1983) defined the propensity score as "the conditional probability of assignment to a particular treatment given a vector of observed covariates." This study uses inverse propensity weights to create comparable groups based on weighting the probability of being treated. Propensity score analysis attempts to control for differences between students and how they came to participate in CIS programming.

The study follows Guo and Fraser's (2015) three step process for utilizing propensity score analysis as part of a strategy for analyzing observational data. The three steps are as follows:

1. Utilize logistic regression to determine the probability that each observation received the treatment based on a set of covariates.
2. Using the propensity scores with Average Treatment Effect on the Treated (ATT) weights, create a comparison group that is similar to the group that received treatment by weighting students who did not receive CIS programming to look like those who did.
3. Conduct multivariate analyses on the weighted data to determine whether differences exist on outcomes of interest between the group that received treatment and the matched comparison group.

The goal of using propensity scores with inverse probability weights to create comparable treatment and comparison groups is to achieve balance (Guo & Fraser, 2015; Heinrich et al., 2010). That is, after applying the weights, the treated and untreated groups are similar (i.e., have similar means) on the set of covariates used in the treatment model, thus controlling for potential differences.

Treatment Model

Treatment Variable

For this study, the treatment variable is whether or not the student participated in CIS high school programming in the 2017-18 and/or 2018-19 school year. Previous CIS evaluations have indicated that it may take up to two years to observe an impact of participation in CIS on student outcomes (Parise et al., 2017). For that reason, analyses were conducted separately for students who received one year and two years of CIS programming, respectively.

Covariates Used in the Treatment Model

Students are referred to CIS for a variety of reasons, but most often because of attendance, behavioral, or academic issues. Given the data available, the analytic goal was to identify variables that are related to students' inclusion in CIS programming and student outcomes and thereby ensure that the comparison and treatment groups are balanced at baseline on a set of covariates (Year 0 – depending on the model, baseline would be the 2016-17 or 2017-19 school-year)–the year prior to being enrolled in CIS. Based on their needs, students served by CIS are assigned a goal or set of goals intended to improve their attendance, behavior, and/or academic performance. Unlike earlier experimental or quasi-experimental CIS studies, this study examined whether students who participated in CIS outperformed similar counterparts across the outcomes of interest, creating two comparison groups: (1) students attending any school not served by CIS in the district and (2) only students attending schools served by CIS. Also, unlike previous evaluations, this study controls for school level variables through the inclusion of school-level covariates or school fixed effects, depending on the specific model. Previous CIS evaluations did not control for school-level variables; rather, they had been comparing students at schools within or across districts.

Student level covariates in the treatment model include: grade level (dummy coded based on graded included in analysis), gender, race/ethnicity, student with disability status, Academically or Intellectually Gifted status, Limited English Proficiency status, Economically Disadvantaged Status, attendance rate – calculated by dividing the number of days present by the number of days enrolled (membership) at the school; number of short-term suspensions; out-of-school suspension days – total number of out-of-school suspensions; End of Grade English Language Arts (ELA) and math tests (for students in 7th or 8th grade in Year 0 - the year prior to

receiving CIS services); Grade Point Average (for students in grades 9-11 in Year 0); and number of credit bearing courses failed (for students in grades 9-11 in Year 0, or the year prior to receiving CIS services).

In addition, the CIS model operates at both the school and student levels through a tiered model of support, so students who are not case-managed by CIS but who attend a CIS school may benefit from school-wide activities and supports provided and brokered by CIS. To account for the possibility that students not enrolled in CIS benefit from being at a school where CIS activities are present, the first treatment model sought to match students within schools served by CIS and can be expressed as:

$$(1)\ Pr_i(D_{is}) = B_0 + B_k X_{ki} + \alpha_s + u_i$$

In this formula, the probability of a student, *i*, in a school *s*, being assigned to the treatment condition is a function of a set of *k* student-level covariates (*X)* and a set of school level fixed effects, *α.* With this sample and model, the control students consist only of non-treated students within schools served by CIS. The school-level fixed effects control for school-level factors that may exert influence on all students attending the school and are relatively consistent across time.

As indicated above, the primary treatment model compared CIS students with other students who attended schools served by CIS but were not served by CIS in a case managed capacity. A second model was more flexible by allowing the comparison group to be created pulling students from any middle or high school not served by CIS. Formally,

$$(2)\ Pr_i(D_{is}) = B_0 + B_k X_{ki} + B_m X_{mi} + u_i$$

where the probability of a student, *i*, being assigned to the treatment condition is a function of a set of observed student-level covariates, X_{ki}, from the year before the student was first served by

CIS. This secondary treatment model creates a comparison group of students attending schools not served by CIS. To ensure the comparison group matches were drawn from schools not served by CIS, I applied a sample restriction that excluded potential matches who did attend schools served by CIS. Thus, the data also includes a set of observed school-level covariates, X_{mi}, to ensure the students in the treatment and control group attended schools of similar size; academic performance as measured by the school performance grade (which is created by the State of North Carolina using rates of proficiency and growth on EOC tests and the 4-year cohort graduation rate); and percentage of economically disadvantaged students.

Analytic Samples

As shown in Table 1, 12 analytic samples were created based on the availability of data by grade level for creating the treatment and comparison groups, the number of years the student was served by CIS, and whether the comparison group for the analysis was students within schools served by CIS or students in schools across the district. To build each analytic sample, I followed the following steps after uploading the master, cleaned dataset: (1) removed all grades not included in the sample, including students missing grade level, (2) dropped students who were served by CIS, but not in the year(s) under investigation, (3) dropped students based on whether the analysis was comparing CIS students to those attending CIS schools or not, and (4) dropped students if they were missing a value on a covariate in the treatment model.

After dropping students who were served CIS other years, not in the grades included in the specified model, and were or were not attending a CIS schools included in the comparison group, on average, 1,362 students were dropped for missing values (accounting for .001-1% of the dropped observations.

The availability of data for the treatment model required that students be grouped by middle and high school. The logistic regression model used for creating the propensity score required that students included in the treatment model have an observation for each variable that is included in the model to prevent them from being dropped from the analytic sample. Middle and high school students have different indicators of academic ability and were run separately. In North Carolina, all middle school students take a standardized End of Grade (EOG) test, whereas in high school, students take End of Course (EOC) tests based on a specific class (only Math I, Math 3, English II, and Biology have EOC tests). The primary analysis examined the impact of CIS on students served for two years (2017-18 and 2018-19); secondary analyses examined the impact of CIS on students served for one year (either 2017-18 or 2018-19). Detailed data tables are included at the end of Chapter 3 and in Chapter 4, Results.

Table 2 highlights the school years and grades used for each treatment and outcome model. Year 0 in each table refers to the year used for creating the comparison group before treatment began, whereas Years 1 and 2 refer to the number of years served by CIS. The impact of CIS was examined based on the final year of enrollment. For example, if students were served for two years, 2018-19 data were used to examine impact; if they were served only in 2017-18, 2017-18 data were used to examine impact; if served only in 2018-19, 2018-19 data were used to examine impact.

Table 1.

Analytic Samples Definition.

Analytic sample	Served by CIS	Data Cohort	Control Group	Sample Size		
				C	T	Total
1	Both years	Middle school	Students in CIS schools	6,762	404	7,166
2	Both years	Middle school	Students not in CIS schools	6,723	323	7,046
3	Both years	High school	Students in CIS schools	5,784	534	6,318
4	Both years	High school	Students not in CIS schools	6,389	432	6,821
5	2017-18	Middle school	Students in CIS schools	3,692	255	3,947
6	2017-18	Middle school	Students not in CIS schools	4,100	261	4,361
7	2017-18	High school	Students in CIS schools	11,094	1,099	12,193
8	2017-18	High school	Students not in CIS schools	13,083	1,099	14,182
9	2018-19	Middle school	Students in CIS schools	2,397	188	2,585
10	2018-19	Middle school	Students not in CIS schools	1,753	128	1,881
11	2018-19	High school	Students in CIS schools	10,736	784	11,520
12	2018-19	High school	Students not in CIS schools	11,998	632	12,630

Note. C = Comparison group. T = Treatment (CIS) group

Table 2.

Students' Grade Level in Each Data Cohort.

	Matching covariates	Served by CIS	
Cohort	Year 0	Year 1	Year 2
Panel A: Students served by CIS for 2 years (both years)			
Middle school data cohort	7th grade	8th grade	9th grade*
	8th grade	9th grade	10th grade*
High school data cohort	9th grade	10th grade	11th grade*
	10th grade	11th grade	12th grade*
Panel B: Students served by CIS for 1 year (2017-18)			
Middle school data cohort	8th grade	9th grade*	
High school data cohort	9th grade	10th grade*	
	10th grade	11th grade*	
	11th grade	12th grade*	
Panel C: Students served by CIS for 1 year (2018-19)			
Middle school data cohort	8th grade	9th grade*	
High school data cohort	9th grade	10th grade*	
	10th grade	11th grade*	
	11th grade	12th grade*	

Note. * indicates the year used to determine impact. Year 0 is the year before CIS service occurred and is used for the treatment model.

The primary analysis examined the effect of two years of case-managed support from CIS on student outcomes compared to students not case-managed by CIS but attending schools that had a CIS presence. Table 3 presents the student make-up of schools not served by CIS and served by CIS in year 1 (2017-18). As observed, a higher percentage of students attending CIS schools were economically disadvantaged, Black and Hispanic, and were classified as having a disability. A lower percentage of students attending CIS schools were identified as academically or intellectually gifted. Understanding the types of schools CIS supports can be helpful to see how, in general, schools served by CIS differ from those not served by CIS in terms of the student population served.

Table 3.

Composition of Non-CIS and CIS schools for 2017-18.

	Non-CIS Schools	CIS Schools	Difference
% Asian/Pacific Islander	6.93	5.01	-1.92
% Black	34.71	44.96	10.25
% Hispanic	17.12	28.10	10.98
% American Indian	0.38	0.40	0.02
% Multi-racial	3.37	2.32	-1.05
% White	37.50	19.20	-18.30
% economically disadvantaged	33.73	47.28	13.55
% male	49.49	51.31	1.82
% female	50.51	48.69	-1.82
% of students with disability	8.72	9.57	0.85
% academically or intellectually gifted	14.29	6.82	-7.47

Notes. Table reports averages for all schools not served by CIS and served by CIS, calculated in year 1 (2017-18). These statistics are school-year averages, calculated by dividing the number of students in the subgroup of interest (e.g., male, female, economically disadvantaged) by the total number of students either not attending or attending CIS schools. As an example, the numbers can be interpreted similar to the following: 33.73% of students attending Non-CIS schools were economically disadvantaged.

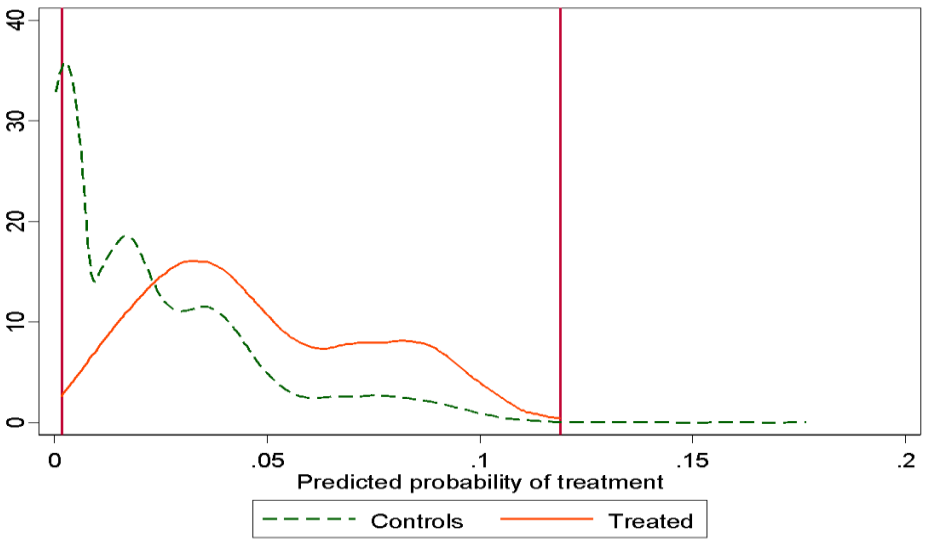
Trimming to Achieve Balance and Common Support

When using propensity score analysis, it is often necessary to trim samples of outliers to ensure that treatment and comparison groups are balanced and have similar group means (Austin, 2008). One such method to achieve balance involves trimming the analytic dataset of outliers based on each student's propensity score. This study uses the minima and maxima comparison rule proposed by Caliendo and Kopeinig (2008). This method compares the minimum and maximum propensity scores of the treatment and control groups and deletes observations that fall below the greater of the two minimums and above the smaller of the two maximums. For this study, this step happened directly after the treatment model was ran to create propensity scores for each student in the analytic sample. For example, if the minimum and maximum values for the propensity score are [.0056, .321] for the treatment group and [.0037, .287] for the control group, all observations with a propensity score below .0056 and above .287 are deleted.

Dropping observations following this rule reduced the overall sample by between .001 and 2%, accounting for on average, a reduction of 1261 students. An example of the overlap graph with the trimming region is exhibited in Figure 4 (overlap graphs for all analytic samples can be found in Appendices A through L).

Figure 4.

Overlap and Trimming Regions – Analytic Sample 2.



Note. Figure includes students served by CIS for 2 years; where treatment year (Year 0) uses middle school data and includes all students with data for matching covariates across the district

Table 3 is an example of the full balance table for analytic sample 2—the sample that includes students served by CIS for both years, where the comparison is pulled using students who did not attend schools served by CIS who had values for all covariates at baseline (and thus have a propensity score) and includes only students who were in middle school in the year (Year 0) for that model. Tables for each analytic sample are included in Appendices A through L. Each table lists the mean for the treatment and comparison groups and the raw difference and

standardized difference for each covariate in the treatment model, as well as the average standardized difference for the analytic sample as a whole. Across any analytic sample and variable, no weighted standardized difference is greater than .05. Additionally, as expected (because of the typology of student CIS typically serves), and on average, the unweighted treatment/CIS condition consisted of more students who were Black, economically-disadvantaged, suspended more frequently, not as involved in academically/intellectually gifted (AIG) programs, and attended schools that had a higher proportion of students who were economically disadvantaged and that has worse school-level academic performance on End of Grade and Course tests. This indicates that, at the covariate level, Average Treatment Effect for the Treated (ATT) weighting creates balance for each analytic sample/cohort.

Table 4.

Balance Before and After Applying IPW - Analytic Sample 2.

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.41	0.71	0.30	0.63	0.70	0.71	0.01	0.00
Days of out of school suspension	0.39	1.03	0.64	0.24	0.85	1.03	0.18	0.07
Number of short-term suspensions	0.12	0.29	0.17	0.24	0.23	0.29	0.06	0.08
Attendance rate	0.97	0.96	-0.01	-0.23	0.96	0.96	0.00	-0.13
Academically and intellectually gifted	0.15	0.05	-0.10	-0.33	0.06	0.05	-0.01	-0.02
Student with a disability	0.07	0.07	0.00	-0.02	0.05	0.07	0.02	0.05
Limited English proficiency	0.05	0.06	0.01	0.07	0.08	0.06	-0.02	-0.09
Male	0.47	0.34	-0.13	-0.26	0.35	0.34	-0.01	-0.03
White	0.31	0.03	-0.28	-0.82	0.03	0.03	0.00	0.01
Asian-Pacific Islander	0.08	0.05	-0.03	-0.15	0.04	0.05	0.01	0.02
Black	0.37	0.67	0.30	0.63	0.62	0.67	0.05	0.11
Hispanic	0.19	0.23	0.04	0.09	0.29	0.23	-0.06	-0.15
American Indian	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.01
Multi-racial	0.04	0.02	-0.02	-0.11	0.02	0.02	0.00	0.02
ELA standardized test Score	0.17	-0.31	-0.48	-0.54	-0.26	-0.31	-0.05	-0.06
Math standardized test score	0.18	-0.39	-0.57	-0.63	-0.37	-0.39	-0.02	-0.03
8th grade (dummy)	0.56	0.53	-0.03	-0.07	0.54	0.53	-0.01	-0.02
School level variables								
Number of students	5876503	3826531	-2049971	-0.70	3345885	3826531	480645	0.17
Percent economically disadvantaged	1517.88	2344.74	826.86	0.88	2067.73	2344.74	277.01	0.30
School performance grade score	5794.92	3842.97	-1951.95	-1.32	3663.36	3842.97	179.61	0.12
			Average Std. Diff. = 0.40				Average Std. Diff. = 0.07	

After the analytic samples were trimmed, I compared the differences between the means of the treatment and comparison groups before and after applying Average Treatment Effect for the Treated weights to ensure that the groups were similar, on average, on the covariates that are likely to predict service by CIS. Table 4 highlights the average unweighted and weighted standardized differences by cohort. This number is the average of the absolute value of the standardized differences for all the covariates used in the propensity model. The larger the average standard difference, the more different the treatment and comparison samples are for each cohort. As observed, the average standardized difference dropped significantly when Average Treatment Effect for the Treated weights were applied, indicating that the treatment and comparison groups were balanced in terms of their group means.

Table 5.

Average Unweighted and Weighted Standardized Difference, by Analytic Sample.

Analytic Sample	Served by CIS	Data Cohort	Control Group	Unweighted Std. Diff.	Weighted Std. Diff.
1	Both years	Middle school	Students in CIS schools	0.210	0.008
2	Both years	Middle school	Students not in CIS schools	0.400	0.074
3	Both years	High school	Students in CIS schools	0.181	0.008
4	Both years	High school	Students not in CIS schools	0.265	0.022
5	2017-18	Middle school	Students in CIS schools	0.224	0.012
6	2017-18	Middle school	Students not in CIS schools	0.366	0.023
7	2017-18	High school	Students in CIS schools	0.165	0.008
8	2017-18	High school	Students not in CIS schools	0.342	0.012
9	2018-19	Middle school	Students in CIS schools	0.211	0.030
10	2018-19	Middle school	Students not in CIS schools	0.212	0.089
11	2018-19	High school	Students in CIS schools	0.138	0.003
12	2018-19	High school	Students not in CIS schools	0.212	0.036

Note. The Unweighted and Weighted Standardized Difference represent the average of the absolute value for each analytic sample.

Implementation Measures

Previous evaluations of CIS have identified several factors that mediate the relationship between CIS programming and student outcomes (ICF, 2010; Parise et al., 2017). These factors are related to the years enrolled in CIS programming as well as the number of supports and support hours (dosage and frequency of support).

Years Enrolled in CIS

Just as disengagement from school is a process that takes time, reengagement to school takes time as well. Students often face challenges and barriers that are layered in such a way that needs must be prioritized; in other words, one need must be addressed to start working on the next. Similarly, the CIS logic model centers around positive student-adult relationships, but relationships are not built overnight. Previous CIS evaluations have found that impacts are observed and more pronounced after two years of being served by CIS (Parise et al., 2017). Thus, this evaluation ran separate models for students served by CIS for one year and two years.

Outcome Analysis

The primary goal of this study was to identify treatment effects of CIS by comparing the outcomes of groups of students who participated in CIS with a similar group of students who did not participate in CIS. Utilizing ordinary least squares (OLS) and logistic regression, I compared the outcomes of students within CIS schools, as well as the outcomes of CIS students with students who do not attend a CIS school (Guo & Fraser, 2015). Standard errors were clustered at the school-level to account for unobserved correlations between students attending the same school (Abadie et al., 2014).

Importantly, the goal of this study was to determine the effectiveness of CIS on those students directly served by CIS rather than studying the effect of CIS on every student in the

district (Guo & Fraser, 2015). Thus, the outcome of interest in this study is the Average Treatment Effect for the Treated. After creating a balance between the treatment and comparison groups, OLS/logistic regression was used to determine the Average Treatment Effect for the Treated. The same covariates used to create the comparison group were used as control variables in the regression models predicting student attendance, suspensions, dropout, Grade Point Average, and End of Course scores. Logistic regression is used to determine what effect, if any, exists for chronic absenteeism or probability of dropping out. Formally, the model is

$$(3)\ \ Y_i = B_0 + B_1 D_i + B_k X_{ki} + B_m X_{mi} + u_i$$

where Y_i is the outcome of interest for student i. The outcome is a function of observed student-level covariates, X_{ki}, from the year before the student was first served by CIS and a set of observed school-level covariates or fixed effects depending on the model, X_{mi}. D indicates whether students participated in CIS case management. Results are reported in Chapter 4.

Limitations of Propensity Score Analysis

A common limitation of propensity score analysis is related to selection bias (Guo & Fraser, 2015; Heinrich et al., 2010; Rosenbaum & Rubin, 1983, Wholey et al., 2010). That is, the possibility exists that all factors that may predict program participation are not included in the calculation of the propensity score. Wholey and colleagues (2010) explained the drawbacks:

> The issue with matching designs is that groups can be made very similar on the covariates that have been measured and used to create an adequate comparison group, but unobserved differences in the treated and untreated groups may remain, and these differences may bias the impact estimates.

This study may, indeed, have suffered from biases stemming from unobserved variables that may have influenced which students participated in CIS, but the selected methods have

allowed an attempt to account for the potential influence of outside factors by including a rich set of covariates gleaned from administrative data in the treatment model. Most importantly, the major covariates used in the propensity model are previous values of the outcome variables, which ae typically the most important covariates to use in a propensity score analysis, as these should be affected by unobservable confounders. Nevertheless, there are unmeasured factors, such as level of parental involvement in a student's education (parents must sign consent allowing their student to participate in CIS). Furthermore, as mentioned previously, both treatment models account for school-level variables that might impact student outcomes by using weights to create a similar comparison group with students within schools served by CIS, one by including school-level fixed effects and the other by including school-level covariates.

CHAPTER 4: RESULTS

This chapter describes the results of a study investigating the effect of case management by CIS on student attendance, behavior, academic, and dropout-related outcomes after one and two years of being served by CIS. With the exception of a randomized controlled trial conducted previously, the current quasi-experimental study is one of the most rigorous studies conducted to date of CIS. Using student-level data from Duke University's North Carolina Education Data Research Center and school-level data from the North Carolina Department of Public Instruction, the study used propensity score analysis to establish a comparison group of like students who were not served by CIS in the 2017-18 and/or 2018-19 school-year.

Within the write-up for each outcome, results are described in the context of the nature of the comparison groups for the analyses. I first describe the effect of CIS when comparing students who were case-managed by CIS to similar students attending schools served by CIS followed by comparing students who were case-managed by CIS to similar students attending schools not served by CIS. Comparing students case-managed by CIS to similar, but not case-managed, groups of students attending schools served by CIS or schools not served by CIS is necessary to control for the fact that schools served by CIS are likely different in unmeasured ways than schools not served by CIS. Each section examines the impact of CIS on student outcomes as a function of the number of school year(s) served and student grade levels, comparing the outcomes for students who participated in CIS programs with both comparison samples of non-CIS students attending schools served by CIS schools and non-CIS students attending schools not served by CIS.

Although results vary based on the number of years served by CIS and the comparison group, the preferred outcome model included students served by CIS for two years and compared

students in the treatment group to students not served by CIS but who attended schools in which other students were receiving CIS services. This specification is preferred for two reasons. First, previous CIS evaluations have indicated that one year of service is not enough to both elicit and observe changes in student behavior, and effects only start appearing after two years of case-management. Second, while it could provide an underestimate of the treatment effect, comparing students served by CIS with a similar group not served by CIS but attending schools served by CIS controls, to some degree, for the effect of CIS services available to the entire school and for the influence of school-level variables that all students experience (e.g., school climate/culture, teachers, and school resources). When comparing students case-managed by CIS for two years to students who attended schools served by CIS but who were not case-managed, the results of propensity score analyses indicate that students served by CIS have significantly higher attendance rates, a lower probability of dropping out, and higher End of Course Biology test scores. No significant findings were present when looking at probability of being chronically absent, number of short-term suspensions, number of days of out-of-school suspension, and End of Course English and Math tests.

In the following sections, I describe the findings of my analysis of the effect of CIS on students' attendance rate and chronic absenteeism, behavior (short-term suspensions and days of out-of-school suspension); academic performance (End of Course English, Math, and Biology tests and Grade Point Average), and probability of dropping out. Each section includes tables showing the effect of CIS on the outcome of interest, by comparison group (comparing against students not served by CIS that attended schools served by CIS and schools not served by CIS). Individual tables for each analysis are included in Appendices M through X.

Findings

Attendance Rate

CIS is hypothesized to increase the attendance rate of participating students by removing barriers to students attending school and increasing students' engagement through one-on-one relationships with their school-based Student Support Specialist. Attendance rate in this study is calculated by dividing the number of days attended by the number of days the student was enrolled at the school. I first describe the effect of CIS on attendance rates when comparing students who were case-managed by CIS to students not served by CIS but who attended schools served by CIS. In the second section, I describe the effect of CIS on attendance rates when comparing students who were case-managed by CIS to students not case-managed by CIS who did not attend schools served by CIS.

Comparison Group Created Using Students Attending Schools Served by CIS

As shown in Table 5, when comparing the attendance rate of students who were case-managed by CIS to students attending CIS schools but not case managed by CIS, CIS students had higher attendance rates than the comparison group. On average, students served by CIS for two years who were in the 9th or 10th grade in the second year had an attendance rate 2 percentage points higher than students in the same school who were not served by CIS (b = .021, p < .01). Similarly, students served by CIS for two years who were in the 11th or 12th grade in the second year had an attendance rate 1 percentage point higher than those attending CIS schools but not served by CIS (b = .012, p < .05). When considering the impact of being served by CIS for one year instead of two, CIS continues to appear to have a positive effect on attendance rate. Students served by CIS in the 9th grade during the 2018-19 school year had a 2 percentage point higher attendance rate than students not served by CIS (b = .022, p < .01) and students in the

10th, 11th, or 12th grade had less than a 1 percentage point higher attendance rate (b = .006, p <. 05). Results when looking at the 2017-18 school year were not significant.

Table 6.

Overview of Results for the Effect of CIS Participation on Students' Attendance Rate where the Comparison Group is Students Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	*B*
1	Both years	MS	.021**
3	Both years	HS	.012*
5	Only 2017-18	MS	-.003
7	Only 2017-18	HS	.005
9	Only 2018-19	MS	.022**
11	Only 2018-19	HS	.006*

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001. Comparison: students attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school fixed effects. Standard errors are clustered at the school level.

Comparison Group Created Using Students Attending Schools That Were Not Served by CIS

As shown in Table 6, no significant effects on attendance rate were detected when comparing students case-managed by CIS to student not case-managed by CIS who attended schools not served by CIS, regardless of the length of time and grade levels while case-managed by CIS.

Table 7.

Overview of Results for the Effect of CIS Participation on Students' Attendance Rate where the Comparison Group is Students not Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	*B*
2	Both years	MS	-.008
4	Both years	HS	-.002
6	Only 2017-18	MS	-.001
8	Only 2017-18	HS	-.004
10	Only 2018-19	MS	-.011
12	Only 2018-19	HS	-.005

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison: students attending schools that were not served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variable (enrollment, percent economically disadvantaged, and school performance grade). Standard errors are clustered at the school level.

Chronic Absenteeism

For this study, chronic absenteeism is defined as a student missing 10% of the number of days enrolled. This outcome is important because missing 10% or more of school days puts students more at risk of academic failure and dropping out (Balfanz et al., 2007). I first discuss the effect of CIS when comparing students who were case-managed by CIS to students not case-managed by CIS but attending schools served by CIS and then discuss the analysis when comparing to students not case-managed by CIS and attending schools that were not served by CIS.

Comparison Group Created Using Students Attending Schools Served by CIS

As presented in Table 7, I detected no effects of being served by CIS for either one or two years on a student's probability of being chronically absent, when students served by CIS were compared to non-CIS students who attended schools served by CIS.

Table 8.

Overview of Results for the Effect of CIS Participation on Student Chronic Absenteeism where the Comparison Group is Students Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Predicted probability of being absent		
			Not in CIS	In CIS	Diff.
1	Both years	MS	.243	.203	-.039
3	Both years	HS	.227	.204	-.023
5	Only 2017-18	MS	.252	.272	.020
7	Only 2017-18	HS	.308	.304	-.004
9	Only 2018-19	MS	.239	.205	-.035
11	Only 2018-19	HS	.171	.170	-.001

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison: students attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school fixed effects. Standard errors are clustered at the school level.

Comparison Group Created Using Students Not Attending Schools Served by CIS

Additionally, I observed no effects of CIS on chronic absenteeism when comparing students served by CIS for two years or only in the 2017-18 school year to students not served by CIS who attended schools that were not served by CIS (Table 8). However, students served by CIS in the 9th grade in the 2018-19 school year had a significantly greater probability of being chronically absent when compared to students in the 9th grade attending schools that were not

served by CIS ($prob_{CIS}$ = .217, $prob_{NONCIS}$ = .137, p < .05). No other significant effects were detected.

Table 9.

Overview of Results for the Effect of CIS Participation on Student Chronic Absenteeism where the Comparison Group is Students not Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Predicted probability of being absent		
			Not in CIS	In CIS	Diff.
2	Both years	MS	.136	.179	.043
4	Both years	HS	.176	.188	.013
6	Only 2017-18	MS	.276	.268	-.008
8	Only 2017-18	HS	.018	.031	.013
10	Only 2018-19	MS	.137	.217	.080*
12	Only 2018-19	HS	.132	.158	.027

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison: students not attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variable (enrollment, percent economically disadvantaged, and school performance grade). Standard errors are clustered at the school level.

Behavior

Behavior outcomes for the analyses as part of this study included the number of days of out-of-school suspension received and the number of short-term suspensions. These are important outcomes to examine because research indicates that students who are suspended not only miss valuable information at school but are also more likely to drop out (Balfanz et al, 2007; Bruce et al., 2007). As shown in Table 9, I detected a significant positive effect for CIS in analyses for the 2017-18 and negative effect in the 2018-19 school years, I observed no effect for analyses for either outcome when looking at students who were served by CIS for two years,

regardless of the analytic sample used. In terms of the effect of CIS on the number of days of out-of-school suspension, students in the 9th grade who were served by CIS in the 2018-19 school year were suspended almost one day less than the comparison group of 9th graders not served by CIS but attending CIS schools (b = -.907, p < .01). Regarding the number of short-term suspensions, students in the 9th grade served by CIS during the 2017-18 school year had significantly more short-term suspensions than students not served by CIS, whether they attended schools served by CIS (b = .349, p < .05) or schools not served by CIS (b = .362, p < .05). Additionally, when compared to students attending not CIS schools, students in the 10th, 11th, or 12th grade case managed by CIS in the 2017-18 school year received more days of out-of-school suspension (b = .173, p < .05).

Table 10.

Overview of Results for the Effect of CIS Participation on Students' Behavior.

Analytic sample (1)	Served by CIS (2)	Comp. Group (3)	Data cohort (4)	Number of Short-term Suspensions (*B*) (5)	Days of OSS Suspension (*B*) (6)
1	Both years	Within	MS	-.013	-.275
2	Both years	Between	MS	.087	.062
3	Both years	Within	HS	.012	.038
4	Both years	Between	HS	.024	.058
5	Only 2017-18	Within	MS	.349*	.605
6	Only 2017-18	Between	MS	.362*	.431
7	Only 2017-18	Within	HS	.018	.046
8	Only 2017-18	Between	HS	.044	.173*
9	Only 2018-19	Within	MS	-.055	-.907**
10	Only 2018-19	Between	MS	.121	-.262
11	Only 2018-19	Within	HS	.011	.071
12	Only 2018-19	Between	HS	.027	.064

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison (Comp) Group: Within = comparing to students attending CIS schools, Across = comparing to students not attending CIS schools. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variables. Standard errors are clustered at the school level. Column (5) refers to the number of short-term suspensions received by an individual student – each suspension classified by the district as short-term would increase the count by 1. Column (6) refers to the number of days of out of school suspension – this is the number of days of out of school suspension an individual student received, regardless of suspension type (e.g., short-term or long-term).

Academic Achievement

Academic achievement is operationalized in this study by using high school End of Course (EOC) tests (English II, Math 1, Math 3, and Biology) and weighted and unweighted Grade Point Average (GPA). Standardized End of Course tests are administered at the end of

certain classes regardless of the grade the student is in. Therefore, depending on the grade levels in the analytic sample, only certain End of Grade tests were run. For the purpose of this study, End of Course tests are standardized by course and year. Both weighted and unweighted Grade Point Average are used to account for potential differences in the difficulty of classes students taken and those passed. A weighted Grade Point Average gives higher points to students who pass more advanced classes (e.g., honors, Advanced Placement) than students who pass regular classes, whereas the unweighted Grade Point Average allocates the same number of points for an 'A' regardless of the difficulty of the class.

I first discuss the effect of CIS on academic performance outcomes when comparing students case-managed by CIS to students not case-managed by CIS but attending schools served by CIS and then discuss the effect of CIS on academic outcomes when comparing students case-managed by CIS to students not case-managed by CIS and attending schools that were not served by CIS. Results are shown in Tables 10 through 13.

Comparison Group Created Using Students Attending Schools Served by CIS

The effects of participation in CIS on academic achievement were inconsistent when comparing students who were case-managed by CIS with students not served by CIS attending CIS schools. On average, students served by CIS for two years who were in the 9th or 10th grade in the second year scored .10 standard deviations higher on their Biology End of Course tests (b = .103, p < .05). Finally, when it came to exploring the effect of CIS on grade point average, students who were case managed by CIS and were in 12th grade in the 2017-2018 school year had significantly higher weighted (b = .128, p < .05) grade point average. No other significant effects were detected after exploring the impact of CIS on English 2, Math 1, Math 3, and

Biology End of Course tests and grade point average for students served by CIS for 2 years or only in the 2018-2019 or 2017-18 school year.

Table 11.

Overview of Results for the Effect of CIS Participation on Students' End of Course Tests where the Comparison Group is Students Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	English 2 (*B*)	Math 1 (*B*)	Math 3 (*B*)	Biology (*B*)
1	Both years	MS	.054	.095	-.094	.103*
3	Both years	HS			.028	
5	Only 2017-18	MS		.047		
7	Only 2017-18	HS	-.062			-.113
9	Only 2018-19	MS		.031		
11	Only 2018-19	HS	.005		.033	.000

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001. Comparison: students attending schools served by CIS. No data on Math 3 End of Course tests in the 2017-18 school year were provided. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school fixed effects. Standard errors are clustered at the school level.

Table 12.

Overview of Results for the Effect of CIS Participation on Students' Grade Point Average where the Comparison Group is Students Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Weighted (*B*)	Unweighted (*B*)
3	Both years	HS	.043	.027
7	Only 2017-18	HS	.128*	.055
11	Only 2018-19	HS	.006	.015

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001. Comparison: students attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school fixed effects. Standard errors are clustered at the school level.

Comparison Group Created Using Students Not Attending Schools Served by CIS

Similar to the results when comparing the outcomes of students who were case-managed by CIS to those attending schools served by CIS, results when comparing students case-managed by CIS to students attending schools not served by CIS were not consistent across analytic samples. On average, when compared to students not attending school served by CIS, students case-managed by CIS scored .17 standard deviations higher on their Math 3 End of Course tests in the 2018-19 school year (b = .175, p < .05). When it came to the 2017-18 school year, students who were case-managed by CIS scored .17 standard deviations higher than students not served by CIS on their Math 1 End of Course tests (b = .171, p < .001). Conversely, students served by CIS in the 2017-18 school years scored .12 standard deviations lower than those not served by CIS on the English 2 End of Course tests (b = -.116, p < .05). No other significant effects were detected.

Table 13.

Overview of Results for the Effect of CIS Participation on Students' End of Course Tests where the Comparison Group is Students not Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	English 2 (*B*)	Math 1 (*B*)	Math 3 (*B*)	Biology (*B*)
2	Both years	MS	-.002	.056		.124
4	Both years	HS			.138	
6	Only 2017-18	MS		.171***		
8	Only 2017-18	HS	-.116*			-.048
10	Only 2018-19	MS		.083		
12	Only 2018-19	HS	.049		.174*	.144

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001. Comparison: students not attending schools served by CIS. No data on Math 3 End of Course tests in the 2017-18 school year were provided. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variable (enrollment, percent economically disadvantaged, and school performance grade). Standard errors are clustered at the school level.

Table 14.

Overview of Results for the Effect of CIS Participation on Students' Grade Point Average where the Comparison Group is Students not Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Weighted (*B*)	Unweighted (*B*)
4	Both years	HS	.022	-.023
8	Only 2017-18	HS	.126	.040
12	Only 2018-19	HS	.045	.001

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001. Comparison: students not attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variable (enrollment, percent economically disadvantaged, and school performance grade). Standard errors are clustered at the school level.

Probability of Dropping Out

Comparison Group Created Using Students Attending Schools Served by CIS

Drop-out is defined by the State of North Carolina as a student who was enrolled in the previous school year but was not enrolled by the 20th day of the following year. Relative to CIS, this is important to examine because CIS' on-going work is an effort to ensure students stay in school long-term. The predicted probabilities for these analyses are displayed in Table 14. The findings indicate that students served by CIS were significantly less likely to drop out than students who were not served by CIS but who attended schools where CIS was present. Students in the 11th and 12th grade served by CIS over the course of both years had a significantly lower probability of dropping out in the 2018-19 school year than students not served by CIS but who attended a school served by CIS ($prob_{CIS} = .007$, $prob_{NONCIS} = .023$, $p < .01$). Students in the 9th and 10th grade who were served by CIS over the course of both years had a 2.2 percentage point lower probability of dropping out in the 2018-19 school year than students not served by CIS but who attended CIS school, but not significantly so. Additionally, students in the 10th, 11th, and 12th grade case-managed by CIS only in the 2018-19 school year had a significantly lower probability of dropping out than students not served by CIS, 1.1 percentage points ($prob_{CIS} = .006$, $prob_{NONCIS} = .017$, $p < .01$). No significant effects were detected between students served by CIS and students not served by CIS who attended schools served by CIS in the 2017-18 school year.

Table 15.

Overview of Results for the Effects of CIS on Dropout where the Comparison Group is Students Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Predicted probability of dropping out		
			Not in CIS	In CIS	Diff
1	Both years	MS	.027	.005	-.022
3	Both years	HS	.023	.007	-.016**
5	Only 2017-18	MS	.017	.025	.007
7	Only 2017-18	HS	.029	.031	.003
9	Only 2018-19	MS	.013	.012	-.001
11	Only 2018-19	HS	.017	.006	-.011*

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison: students attending schools served by CIS. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school fixed effects. Standard errors are clustered at the school level.

Comparison Group Created Using Students Attending Schools Not Served by CIS

As indicated in Table 15, the impact of CIS on dropout is inconsistent when students served by CIS are compared to students not served by CIS and who attended schools not served by CIS. While no significant effects were detected for students served by CIS across both years or in the 2018-19 school year, students in the 10th, 11th, or 12th grade who were served by CIS for only the 2017-18 school year were more likely to drop out than students who attended schools not served by CIS. Specifically, when compared to similar students attending schools not served by CIS, students case-managed by CIS in the 2017-18 school year had a significantly greater probability of dropping out ($prob_{CIS} = .031$, $prob_{NONCIS} = .018$, $p < .01$). No other significant effects were detected for analyses conducted for the 2017-18 school year.

Table 16.

Overview of Results for the Effect of CIS on Dropout where the Comparison Group is Students not Attending Schools Served by CIS.

Analytic sample	Served by CIS	Data cohort	Predicted probability of dropping out		
			Not in CIS	In CIS	Diff
2	Both years	MS	-	-	-
4	Both years	HS	.004	.007	.003
6	Only 2017-18	MS	.010	.023	.013
8	Only 2017-18	HS	.018	.031	.013**
10	Only 2018-19	MS	-	-	-
12	Only 2018-19	HS	.005	.007	.002

Note. MS=Middle School; HS=High School. Significance: *p<.05, **p<.01, ***p<.001; Comparison: students not attending schools served by CIS; No CIS students dropped out, preventing the analyses for analytic samples 2 and 10 from running. Models include controls for attendance rate; days/number of suspensions; economically disadvantaged, academically/intellectually gifted, student with a disability, and limited English proficiency status; gender; race; grade level; academic performance indicators; and school variable (enrollment, percent economically disadvantaged, and school performance grade). Standard errors are clustered at the school level.

CHAPTER 5: DISCUSSION

Communities In Schools (CIS) places trained professionals in schools to work with school staff and students to improve student outcomes through site coordination and case management process. The case management process was central to this study and involves the process by which students receive an assessment and plan to meet their needs, and how data are monitored and used to inform and evaluate that process. Students case-managed by CIS can receive a combination of three tiers of support from their Student Support Specialist or a community partner. Tier 1 are supports available to large segments of the school population. Tier 2 supports are typically delivered in a group setting to case-managed students with a common need. Tier 3 are supports delivered one-on-one to individual case-managed students. Examples of such support include, but are not limited to attendance monitoring, academic support and enrichment, mentoring, meeting basic needs, counseling/social-emotional learning, college/career readiness supports, encouraging parent engagement, and enacting behavior interventions (CIS Charlotte-Mecklenburg, 2021). Students who are case-managed by CIS can receive any combination or all of the tiers of support.

The current project evaluated the impact of a specific CIS case management program on student attendance, behavior, academic performance, and dropout, thereby contributing to the limited evidence base on the effects of the CIS case management model. Using data from Duke University's North Carolina Education Research Data Center (NCERDC), propensity score analyses were conducted to create comparison groups that are similar to the groups of students case-managed by CIS on a set of student- and school-level covariates. Twelve analytic samples were constructed for the study by taking into account (a) the comparison group (comparing students case-managed by CIS to students not case-managed but attending schools served by CIS

and to students attending schools not served by CIS), (b) grade level (middle and high school), and (c) years of treatment (only the 2017-18 school year, only the 2018-19 school year, or both years). Ordinary least squares and logistic regression and inverse probability weights were then used to explore the impact of CIS on attendance rate, the probability of being chronically absent, the number of short-term suspensions, the number of days of out-of-school suspension, End of Course Test scores, Grade Point Average, and the probability of dropping out.

The results for each of the analytic samples and outcomes included in this study are summarized in Table 16. The table lists each finding that is significant at the $p < .05$ level and the direction of the associated relationship. Although analyses were conducted on all 12 analytic samples, the preferred model (explained in detail in the Results chapter) compares students case-managed by CIS for two years to a similar group of students attending schools served by CIS but who were not case managed by CIS. For this model, CIS was found to have: (1) a significant positive effect on student attendance rates, such that case-managed CIS students had higher attendance rates than non-case managed students in CIS schools; (2) no significant effect on the number of short-term suspensions and days of out-of-school suspension; (3) no significant effect on English 2, Math 1, and Math 3 End of Course test scores, or on 12th grade Grade Point Average; (4) a significant positive effect on Biology End of Course test scores; (5) a significant negative effect on students' probability of dropping out, such that students served by CIS had a lower probability of dropping out compared to non-case managed students in CIS schools

Overall, the results of the evaluation provided mixed, yet encouraging, evidence for the impact of CIS case-management on students who were served by CIS for at least two years. Although no consistent effects were found on student behavior or academic performance, increasing attendance and decreasing dropout rates are critical and foundational indicators of

engagement and students' long-term academic success (Finn, 1989). Additionally, as found in previous studies on the effectiveness of the case-management component of the CIS Model (Hallgren et al., 2019; Parise et al., 2017), one year of involvement with CIS did not appear to positively impact student outcomes, and in some cases, appeared to have a negative effect on student outcomes. In the discussion, I describe these findings in detail, offer implications for educational policy and practice, describe the limitations of the study, and make recommendations for future evaluations of CIS programming.

Table 17.

Overview of Significant Findings.

	Comparison to students attending CIS schools						Comparison to students not attending CIS Schools					
Served by CIS	Both	Both	2018	2018	2019	2019	Both	Both	2018	2018	2019	2019
Data Cohort	MS	HS	MS	HS	MS	HS	MS	HS	MS	HS	MS	HS
Analytic Sample	1	3	5	7	9	11	2	4	6	8	10	12
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Attendance rate	+	+	ns	ns	+	+	ns	ns	ns	ns	ns	ns
Probability of being chronically absent	**ns**	**ns**	ns	ns	ns	ns	ns	ns	ns	ns	+	ns
Number of short-term suspensions	**ns**	**ns**	+	ns	ns	ns	ns	ns	+	ns	ns	ns
Number of days out of school suspension	**ns**	**ns**	ns	ns	-	ns	ns	ns	ns	+	ns	ns
Math 1 end of course test	**ns**		ns		ns		ns		+		ns	
Math 3 end of course test		**ns**				ns		ns				+
English 2 end of course test	**ns**			ns		ns	ns			-		ns
Biology end of course test	+			ns		ns	ns			ns		ns
Weighted Grade Point Average		**ns**		+		ns		ns		ns		ns
Unweighted grade point average		**ns**		ns		ns		ns		ns		ns
Probability of dropping out	**ns**	-	ns	ns	ns	-		ns	ns	+	ns	ns

Notes: "+" indicates that CIS students have significantly higher rates or probability; "-" indicates that CIS students have significantly lower rates or probability; "ns" indicates results are not significant; blanks indicate no data were available for the outcome for the group of students in that year (e.g., small n, perfectly predicted outcome, no data because cohort did not include students in courses that take required end of course tests). **Bold** indicates preferred model.

Primary Findings

Three factors were taken into consideration when establishing analytic samples for this study: (a) whether students in the comparison groups attended schools served by CIS, (b) students' grade level in the year used for the treatment model, and (c) whether the students case-managed by CIS were served only in the 2017-18 school-year, only the 2018-19 school-year, or both the 2017-18 and 2018-19 school-years.

The decision to conduct separate analyses using comparison groups composed of students who did and did not attend a school served by CIS was an attempt to account for three things that might affect student outcomes. First, a number of factors (e.g., school leadership, school and student need, CIS' access to students during the day to provide services) play a role in whether, and how well, CIS programs are implemented in a given school. Additionally, only including students attending CIS schools as the comparison in the preferred model controls for school leadership. While leadership drives the culture, disciplinary policies, and structures of schools, it also creates environments that support positive parent/family engagement, especially when principals encourage staff to actively solicit students and parents/caregivers to participate in CIS. Given that principals must invite CIS into their schools, merely having CIS in their schools indicates a willingness to partner with and engage parents/caregivers in the school community. Often, as in the case for this study, CIS works in low-performing schools that serve a high proportion of students living in poverty. Second, CIS provides school-wide supports that could impact students attending CIS schools but who are not case-managed and tracked by CIS. Finally, the CIS affiliate that participated in this study has a specific but not exclusive focus on improving student attendance. Each of these three considerations raises the possibility that students in CIS schools differ from those in non-CIS schools even if they are not personally

involved in CIS programs. Comparing students case managed by CIS programs both to non-CIS students in their own school and to students in non-CIS schools allowed this possibility to be examined.

In the following sections, I interpret the primary findings from this study, noting differences in outcomes between the analytic samples.

Attendance

The results indicated that, when compared to students attending CIS schools, students case-managed by CIS for two years had higher attendance rates in their second year being served by CIS (e.g., the 2018-19 school year). However, when compared to students attending schools not served by CIS, students case-managed by CIS did not significantly differ from the comparison group, regardless of the number of years case-managed by CIS. One possible explanation for these unexpected findings is that, although propensity score analysis attempts to create balanced groups, differences may exist between CIS and non-CIS schools that are not observed in the data, such as leadership or school climate, resulting in differences between CIS and non-CIS students that have nothing to do with CIS programming per se. In general, as observed in the balance tables, comparison groups of non-CIS students from the CIS schools are more similar to students case-managed by CIS than are students in the comparison groups obtained from non-CIS schools on variables such as economically disadvantaged status, attendance rates, suspensions, and academic performance. My models adjust for differences in these variables but there might be other unobserved differences that differentiate the groups under study.

Also noteworthy is the finding that, although students case-managed by CIS had significantly higher attendance rates, there was no significant difference in their probability of

being chronically absent. Any increase in the number of days a student attends school will likely benefit them educationally; however, it is unknown whether the one to two percent statistically significant difference in attendance rate has practical significance.

Behavior

Like Hallgren et al. (2019), this study found no impact of CIS on indicators of student behavior in the two-year, within school model. Although behavioral outcomes are part of CIS' focus, it appears CIS does not have a significant impact on the number of suspensions or number of days of suspensions students receive. Data regarding student discipline, including suspensions, is heavily influenced by subjective factors in which teachers' judgments play a role in whether students are referred to the office for disciplinary reasons. As a result, disciplinary actions are often loosely related to actual student behavior so that suspensions may be only weakly related, if at all, to the actions of CIS student support specialists (Skiba et al., 2011). In addition, student misbehaviors may be less easily changed than other outcomes, possibly because CIS student support specialists are not equipped to fully address the foundations of problematic behaviors.

Academic Performance

As a whole, the results of the analyses examining the impact of CIS on academic outcomes do not support the notion that students who are case-managed by CIS outperform students not served by CIS, especially for the preferred model of two years of case-management by CIS and comparing to non-CIS students attending CIS schools. Specifically, the outcomes investigated were English 2, Math 1 and 3, and Biology End of Course test scores and Grade Point Average. Based on evidence in the student engagement literature and CIS' logic model this finding makes sense (Finn, 1989). Students, especially those who are struggling academically, must first attend school regularly and be behaviorally engaged before any improvement in test

scores or grades will be observed. Grade Point Average (GPA), especially later in high school, is an arguably better indicator of academic achievement than test scores because it is calculated based on grades over time and is not a function of a test on a given day. Even so, no significant effects were detected for the Grade Point Average of students case-managed by CIS for two years. Accurate enrollment data and a planned evaluation to follow students longitudinally throughout high school would allow future research to test the relationship between attendance, behavior, and academic performance. For example, do students who are case-managed by CIS for two years have increased attendance that results in increased academic performance after four years.

Dropout Rate

A key indicator of the success of any program delivering Integrated Student Supports is that the students served stay in school. Not only is it difficult to re-engage students who have dropped out, but also dropping out creates significant costs for society at-large (Belfield et al., 2011; Sum et al., 2009). This study found that students who were case-managed by CIS for two years had a significant lower probability (1.6 percentage points lower) of dropping out when compared to a similar group of students attending CIS schools. Additionally, while not significant, the magnitude of the difference in probability of dropping out was larger when looking at students case-managed by CIS who transitioned into high school while being served. This finding supports previous work involving the importance of supporting students in their transition from middle to high school (Bruce et al., 2011; ICF International, 2010).

Overall, then, the study yielded two primary conclusions. First, students case-managed by CIS had higher attendance rates and a lower probability of dropping out than comparison

students within schools served by CIS. Second, CIS had very little or no impact on student behavior and academics.

Implications

Given the analyses of the effect of CIS on student attendance, behavior, academic performance, and drop out and fact that the differences between CIS and non-CIS students were less extensive than CIS advocates would likely prefer, the results nonetheless offer two tentative implications for designing and supporting students' non-academic and academic needs.

Support for Case Management as a Two-Year Process

Perhaps the strongest positive effect associated with CIS in this study was the finding that students who were case-managed by CIS for two years had significantly higher attendance rates and a significantly lower probability of dropping out than non-case managed students in CIS schools. As noted, the one-year analyses were null, negative, or not as robust as those observed in students served for two years.

Many writers have discussed the critical link between non-academic outcomes–such as student engagement, attendance, and behavior–and academic outcomes, such as grades and standardized tests scores (Allensworth et al., 2007; Balfanz et al., 2007). Obviously, strong academic performance is predicated on students being reasonably engaged, attending school regularly, and behaving in ways that facilitate rather than interfere with learning. Yet, it takes time to foster engagement in disengaged students (for general discussions of student engagement, see Balfanz et al., 2007; Finn, 1989; Rumberger, 1987).

The assumption that it takes time to build engagement and its consequences is reflected in the CIS logic model, which suggests that case-management is expected to increase engagement which, in turn, increases attendance and/or the probability of staying in school over time. The

current study found that students who were case-managed by CIS for two years had significantly higher attendance rates and a significantly lower probability of dropping out than non-case managed students in CIS schools but that, consistent with other research (Hallgren et al., 2019; Parise et al., 2017), a single year of CIS participation did not have these effects. This pattern of findings suggest that CIS and other Integrated Student Supports (ISS) providers should be proactive in trying to serve students for at least two consecutive years. Additional longitudinal studies of CIS and other Integrated Student Supports providers are needed to replicate these results and explore impacts on these and other outcomes beyond two years. Obviously, not all students can be served for multiple years for a variety of reasons but given that keeping students in school is critically to getting them across the stage at graduation, these results suggest that programs focused on increasing attendance and reducing the drop-out rate should aim to do so when possible.

Policy and Practice

What is less clear are the strategies that states, districts, schools, and community partners can deploy to address at-risk students' needs and improve their chances for success. With the recent national and state emphasis on "Whole Child" approaches to addressing the needs of at-risk students, along with nearly two years of academic losses from the pandemic, there is great interest in expanding partnerships between schools and community providers (Darling-Hammond & Cook-Harvey, 2018). The strategy of having community-based organizations provide Integrated Student Supports beyond the classroom, especially during transition years, as a way to improve outcomes (e.g., student engagement and attendance) that are predictors of student achievement reflects the difficulty districts and schools have meeting the needs of the whole student. Continued study of these community-based relationships and supports is needed

to better understand how to strengthen their implementation and impact. Also important is an examination of how the demographics of the teaching workforce, as well as CIS staff and its partners reflect the demographics of the students it serves. For example, the teaching workforce in the school district is 63% White, 29% Black, 2.3% Latinx, and 2% Asian (Helms, 2021). Evidence indicates that students, especially those who are Black, relate to and learn better from a teacher of the same race (Redding, 2019). While the study applies to teachers and classrooms, it is possible that the same is true for students being served by community-based agencies. That is, students and families are going to be more receptive to and engage deeper with someone who they perceive to have experiences in common.

One way forward is that states could create grant programs like North Carolina's Extended Learning and Integrated Student Supports program. This program funds community organizations in partnership with districts working to address student needs related to attendance, behavior, academic performance, and parent/family engagement. While funding through the program supports programmatic activities, it does not require a third-party evaluation or rigorous design. Grant programs should continue to find ways to incorporate evaluation requirements into funding streams to ensure, at minimum, programs are reflecting on their work and seeking to use data to improve services provided to students and families.

Limitations

In considering the findings of this study, a number of limitations should be considered with respect to the methods, statistical procedures, and data available.

Possible Confounds and Moderators

Although not as rigorous as certain other methods of exploring program effectiveness,

such as randomized controlled trial, regression discontinuity, and difference-in-difference approaches, propensity score analysis is appropriate given CIS' program structure (e.g., how students are identified for case management) and the nature of the data maintained by CIS over time. The study did not lend itself to regression discontinuity and difference-in-differences analyses because students who participate in CIS are not identified based on a prespecified cut-score and participating students are often identified using information regarding one or more outcome variables, such as attendance or test scores, in previous years. And, of course, a randomized control trial in which students were randomly assigned to CIS programming or a control group was not possible. Although steps were taken to attempt to address threats to internal and external validity that are present in any nonexperimental design (such as propensity score analysis and including school-level covariates into the treatment model), the possibility remains that confounding and moderating variables exist that are not accounted for in the treatment and outcome models.

For example, as mentioned previously, students must have parent consent to participate in CIS programming. Because CIS serves and tracks only those students who return a signed parent/guardian consent form, some students in the comparison group may have been identified to be served by CIS but did not return a parent consent. Given that some level of parental or guardian engagement is needed for parents/guardians to grant consent, especially in high school, students group case-managed by CIS could potentially have more family support than students not involved in CIS programs simply because their parents or guardians did not return the consent form. The potential impact of this unavoidable confound on the results is not clear but deserves future attention.

Furthermore, parental and family engagement is also an important predictor of student success in its own right (Topor et al., 2010). However, neither the school district nor CIS collects data regarding parental/family engagement. Thus, it is possible that parent/family engagement is not only a factor in CIS involvement, but also a moderator of the effects of CIS services on student outcomes because students with greater support from home may take greater advantage of CIS programs than students with less support.

The data obtained from CIS included no information regarding which specialized services specific students were receiving at school or through other agencies, whether required by law or not. For example, the data from the North Carolina Education Data Research Center indicates whether each student has an Individualized Education Plan (IEP) but does not indicate which services are being provided, the quality of those services, or how the parent/family and student are engaging in those services. Other services, including those provided to students with Individualized Education Plans, which are not captured by CIS or the North Carolina Education Data Research Center, include but are not limited to, psychological assessments and services, occupational and physical therapy, and homeless services. Having such information would allow a more fine-tuned analysis of the effects of CIS services, possibly revealing that certain services affect some outcomes but not others.

Finally, as mentioned in Chapter 3, propensity score analysis comes with its own limitations. Although propensity score analysis is a good fit methodologically for this study, it operates under the assumption that data are available on variables that would likely predict treatment. Certainly, many variables that would conceptually be linked to a student being served by CIS were included in the treatment model (e.g., economically disadvantaged status and

previous year's attendance and academic performance), there could be other factors, known and unknown, that influence participation in CIS that are not accounted for.

Accuracy of CIS Programmatic Data on Case-managed Students

A third general limitation involves the nature of the data maintained by CIS. Communities In Schools standards require that staff use the CIS Data Management system to track school and student needs, plans, services, and progress. However, the data in the system are only as good as the care with which they are entered. Because of shifts to the CIS Model, a number of different data points were not available or had so much variability that they couldn't be trusted to be accurate. For example, although a needs assessment was conducted and goals were set for each student, these data were not available for the years of this analysis. Furthermore, although knowing the specific date that students exited CIS programs would have been quite useful, these data were not accurate, and many had dates outside the range of plausible years in which students could be served by CIS, such as obvious place holders and dates of birth. For this reason, a student was considered to be served by CIS if they were case-managed at any point during the year, regardless of the length of their participation.

Although shortcomings in the data did not undermine the validity of the analyses that were conducted, they prevented certain analyses that would have been highly informative. Outside providers of Integrated Student Support, including CIS, should make an effort to keep better, more complete records of their activities.

Generalizability of the Study

CIS affiliates are, except in rare situations, independent non-profit organizations with a Board of Directors and Executive Director leading the organization. This study involved one CIS affiliate and given the wide array of services provided by local affiliates, its results should not be

generalized to reflect the work of all CIS affiliates. The local affiliate engaged in this study (urban) is not only one of the largest CIS affiliates in terms of the number of schools and students served but also has an explicit focus on attendance. Larger affiliates often have more resources to hire and train Student Support Specialists and provide operational support.

Furthermore, Student Support Specialists bring individual and unique experiences and expertise into their work in schools with students in the case management process. This study included no measure for the quality of Student Support Specialist, and beyond their Total Quality System Standards, CIS has no measure of fidelity. For example, it could be that more veteran Student Support Specialists serve students with higher levels of fidelity leading to better student outcomes. On the other hand, Student Support Specialists with different backgrounds (e.g., social worker, teacher, community advocate) would likely approach their work with students slightly differently. This study did not have access to data about Student Support Specialists' education, years on the job, students' perception of the quality of relationships or services provided, or other measure of fidelity to the CIS Model.

Finally, it is important to consider the resources and context of schools and districts. Factors related to the amount of money districts and schools have to spend per student for supplemental student supports or lower student-teacher ratios could also have an impact on student outcomes. Broadly, care should be taken when attempting to generalize these results to other districts and schools. Specific attention should be paid to existing funding and efforts aimed at improving outcomes when attempting to generalize the results of this study to other Integrated Student Support work and programs.

Recommendations

Informing CIS Implementation

Consistent with previous studies that have had difficulty identifying positive effects of CIS, this study showed that high school students case-managed by CIS over the course of one school year are not likely to have significantly better attendance, a lower number of suspensions, or higher academic performance than students not served by CIS. Importantly, however, this study found that CIS students did have higher attendance rates and lower dropout rates after being case-managed for two years. Given the consistent finding that one year of service does not create a positive effect on student outcomes, CIS should continue to refine its model to increase the likelihood that students are served for more than one year (Mathematica, 2019; Parise et al., 2017).

In partnership with the local school district, the CIS affiliate that is part of this study has an explicit but not exclusive focus on removing barriers associated with low attendance. Although CIS requires that each student has a goal related to attendance, behavior, academics, parent/family engagement, and/or social-emotional health, these individual goals are not well documented in the CIS Data Management System. If attendance is a primary goal at the high school level for CIS case management, perhaps students could be selected to receive CIS services based on low attendance, with Student Support Staff trained and hired to focus on that specific outcome. Implementation evaluations are critical to better understanding the mechanisms contributing to impact and the relationship between implementation quality and student impacts.

Recommendations for Future Research

Given the lack of consistent findings with respect to student outcomes, CIS should continue to seek funding for evaluations and encourage local affiliates to evaluate their own programming. Additionally, where possible, future research on CIS and Integrated Students Supports should be longitudinal in nature whenever possible.

In terms of study design, given the importance of teachers' skills on students' academic outcomes, it would be helpful to control for teacher-level variables to isolate the effect of CIS on academic performance separate from teacher quality and also to examine whether teacher quality moderates the effects of CIS programs. For example, students who have particularly good teachers may benefit more from CIS services because good teachers may amplify positive effects of CIS.

It is also important to consider how to connect proximal to distal outcomes for CIS students so researchers can know, for example, whether the improvement in attendance rates is related to a subsequent increase in academic outcomes in the longer term. Research could be designed to examine how CIS impacts middle and high school students in a stepwise fashion using sequential modeling analyses such as structural equations modeling. For example, the first step could involve changing students' attitudes toward school and removing barriers to attending school in the short-term, with the subsequent step focusing on changing behavior and academic performance beyond two years. Additionally, CIS' mission is that students stay in school and achieve in life. Yet, no evaluation to this point has focused on the longitudinal impact of CIS on post-secondary and life outcomes in a comparative way. While studies unrelated to CIS have examined the social and economic cost of students dropping out, it would be powerful to understand whether and how CIS might affect college going and degree attainment rates,

employment opportunities, and earnings or income in the years post-high school. Given the amount of resources allocated to and utilized by Integrated Student Support providers, including CIS, a full benefit-cost and cost-effectiveness analysis would also be informative to establish the financial benefit not only of students staying in school as established in previous work (Belfield et al. 2011). It is also important to explore the associated cost and impact of increasing attendance rates, reducing suspensions, and increasing academic performance. While previous work on similar programs such as City Connects have found a $3 to society for every $1 invested, no such comprehensive economic evaluation exists for CIS (Bowden et al., 2020). It would be prudent for future evaluations of local CIS affiliates to simultaneously collect impact and cost data to establish a basis for making financial investments of public dollars. A cost model for CIS would be difficult to establish without accounting for the cost of personnel, resources, and partnerships/programs in different states and locales.

Finally, although the data used in this study was collected before the global COVID-19 pandemic, the pandemic will no doubt impact research moving forward. Most notably, it will be difficult to conduct research and evaluation of programs that either did not have access to students during the pandemic or could not implement their models as intended. Furthermore, large gaps in program and student administrative data are to be expected for the 2019-20 and 2020-21 school years.

Conclusion

Given significant attention to and investments in Integrated Student Supports, policy makers, funders, school leaders, and program leaders should be interested not only in whether programs are having the intended impact, but also whether the program model can be improved to meet the needs of students more effectively or efficiently. This study examined the effect of

Communities In Schools (CIS) programming on student outcomes by utilizing propensity score analysis and controlling for whether comparison students attended schools served by CIS or not served by CIS. This study explored the impact of CIS case-management while attempting to control for the fact that CIS operates in needier schools and delivers school-wide supports in most schools that it serves.

In terms of positive effects, the study found that, on average, students who were case-managed by CIS for two years had higher attendance rates and lower probability of dropping out than non-case managed students in CIS schools. In general, and as found in previous evaluations of the CIS Model, students served by CIS for one year or less did not outperform non-CIS students on the outcome measures and, in in some cases, had lower attendance rates and a higher probability of being chronically absent. The results suggest that CIS affiliates should focus on ways to provide services for a minimum of two years when possible and could consider focusing their attention on malleable factors that influence students' attendance and ability to stay in school, and less time on other student outcomes such as in-school misbehavior (e.g., suspensions) that have been more difficult to change.

Given previous evaluations and CIS' foci, this study's results regarding attendance and drop-out rates are promising, as students cannot benefit from high quality instruction if they are not attending school. Community-based providers and their funders, both public and private, should continue to study the extent to which the at-risk students they serve are improving their engagement with school in ways that keep them on the path to graduation and subsequent education and career success.

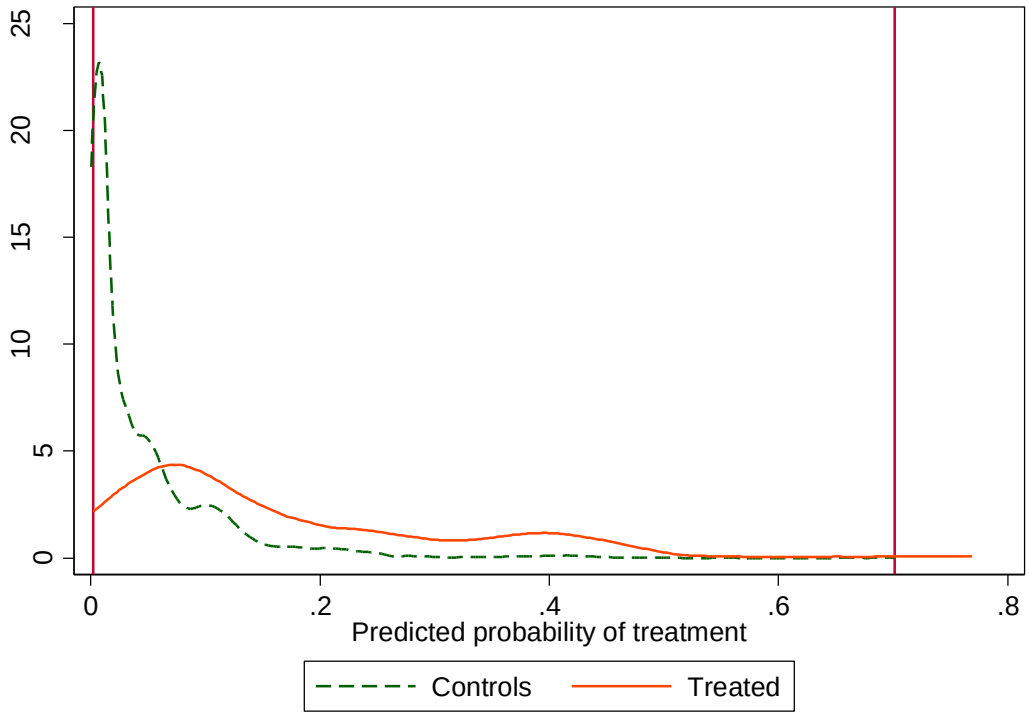
APPENDICES

Appendix A: Balance Table and Trimming Regions—Analytic Sample 1

Table A1. *Balance Before and After Applying IPW - Analytic Sample 1.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.55	0.74	0.19	0.40	0.74	0.74	0.00	0.00
Days of out of school suspension	0.89	1.23	0.34	0.10	1.26	1.23	-0.03	-0.01
Number of short-term suspensions	0.27	0.34	0.07	0.08	0.35	0.34	-0.01	-0.01
Attendance rate	0.96	0.96	0.00	-0.02	0.96	0.96	0.00	0.00
Academically and intellectually gifted	0.10	0.04	-0.06	-0.26	0.04	0.04	0.00	-0.01
Student with a disability	0.08	0.06	-0.02	-0.07	0.06	0.06	0.00	0.01
Limited English proficiency	0.10	0.07	-0.03	-0.12	0.06	0.07	0.01	0.01
Male	0.53	0.32	-0.21	-0.44	0.32	0.32	0.00	-0.01
White	0.19	0.02	-0.17	-0.58	0.02	0.02	0.00	0.00
Asian-Pacific Islander	0.05	0.04	-0.01	-0.04	0.04	0.04	0.00	-0.01
Black	0.42	0.69	0.27	0.56	0.69	0.69	0.00	0.00
Hispanic	0.31	0.22	-0.09	-0.20	0.22	0.22	0.00	0.00
American Indian	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.00
Multi-racial	0.02	0.02	0.00	-0.05	0.01	0.02	0.01	0.02
ELA standardized test Score	-0.16	-0.33	-0.17	-0.19	-0.35	-0.33	0.02	0.01
Math standardized test score	-0.17	-0.42	-0.25	-0.28	-0.42	-0.42	0.00	0.00
8th grade (dummy)	0.51	0.54	0.03	0.06	0.54	0.54	0.00	0.00
School level variables								
School 1	0.02	0.03	0.01	0.09	0.03	0.03	0.00	0.01
School 2	0.12	0.09	-0.03	-0.09	0.09	0.09	0.00	0.00
School 3	0.07	0.05	-0.02	-0.07	0.06	0.05	-0.01	0.00
School 4	0.07	0.15	0.08	0.26	0.15	0.15	0.00	0.00
School 5	0.11	0.10	-0.01	-0.03	0.11	0.10	-0.01	-0.01
School 6	0.20	0.09	-0.11	-0.32	0.09	0.09	0.00	0.00
School 7	0.11	0.01	-0.10	-0.41	0.01	0.01	0.00	0.00
School 8	0.00	0.03	0.03	0.21	0.03	0.03	0.00	-0.06
School 9	0.13	0.02	-0.11	-0.40	0.02	0.02	0.00	-0.01
School 10	0.04	0.24	0.20	0.60	0.23	0.24	0.01	0.03
School 11	0.05	0.08	0.03	0.15	0.08	0.08	0.00	0.00
School 12	0.09	0.09	0.00	0.01	0.09	0.09	0.00	0.00
	Average Std. Diff. = 0.21				Average Std. Diff. = 0.01			

Figure A1. *Trimming Regions - Analytic Sample 1***.**

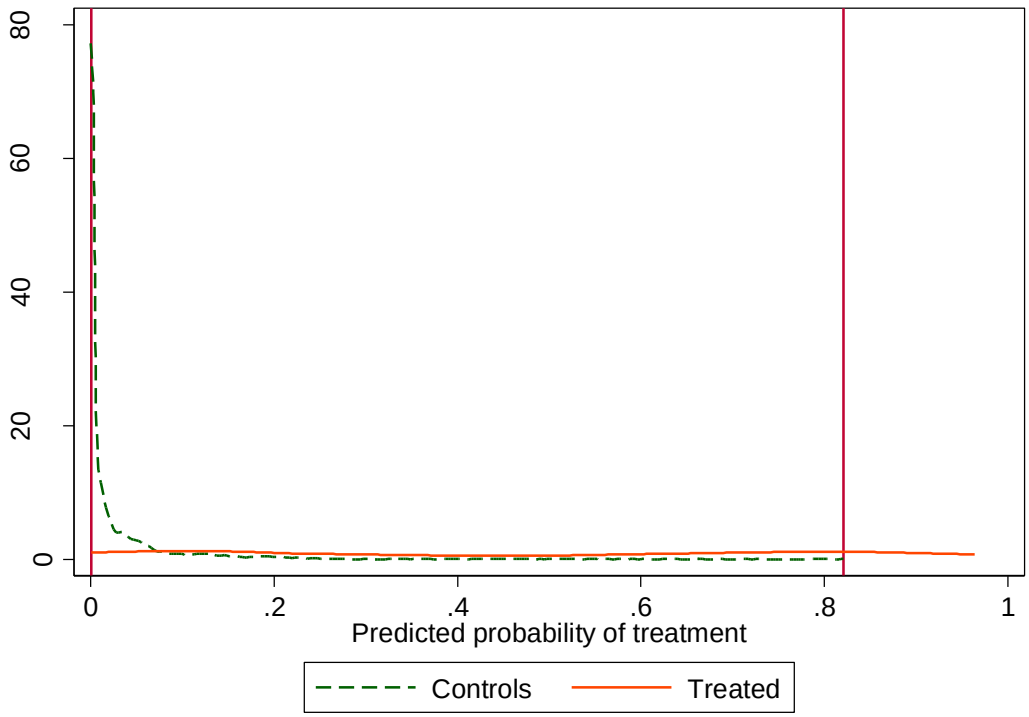


Appendix B: Balance Table and Trimming Regions—Analytic Sample 2

Table B1. *Balance Before and After Applying IPW - Analytic Sample 2.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.41	0.71	0.30	0.63	0.70	0.71	0.01	0.00
Days of out of school suspension	0.39	1.03	0.64	0.24	0.85	1.03	0.18	0.07
Number of short-term suspensions	0.12	0.29	0.17	0.24	0.23	0.29	0.06	0.08
Attendance rate	0.97	0.96	-0.01	-0.23	0.96	0.96	0.00	-0.13
Academically and intellectually gifted	0.15	0.05	-0.10	-0.33	0.06	0.05	-0.01	-0.02
Student with a disability	0.07	0.07	0.00	-0.02	0.05	0.07	0.02	0.05
Limited English proficiency	0.05	0.06	0.01	0.07	0.08	0.06	-0.02	-0.09
Male	0.47	0.34	-0.13	-0.26	0.35	0.34	-0.01	-0.03
White	0.31	0.03	-0.28	-0.82	0.03	0.03	0.00	0.01
Asian-Pacific Islander	0.08	0.05	-0.03	-0.15	0.04	0.05	0.01	0.02
Black	0.37	0.67	0.30	0.63	0.62	0.67	0.05	0.11
Hispanic	0.19	0.23	0.04	0.09	0.29	0.23	-0.06	-0.15
American Indian	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.01
Multi-racial	0.04	0.02	-0.02	-0.11	0.02	0.02	0.00	0.02
ELA standardized test Score	0.17	-0.31	-0.48	-0.54	-0.26	-0.31	-0.05	-0.06
Math standardized test score	0.18	-0.39	-0.57	-0.63	-0.37	-0.39	-0.02	-0.03
8th grade (dummy)	0.56	0.53	-0.03	-0.07	0.54	0.53	-0.01	-0.02
School level variables								
Number of students	5876503	3826531	-2049971	-0.70	3345885	3826531	480645	0.17
Percent economically disadvantaged	1517.88	2344.74	826.86	0.88	2067.73	2344.74	277.01	0.30
School performance grade score	5794.92	3842.97	-1951.95	-1.32	3663.36	3842.97	179.61	0.12
			Average Std. Diff. = 0.40				Average Std. Diff. = 0.07	

Figure B1. *Trimming Regions - Analytic Sample 2.*

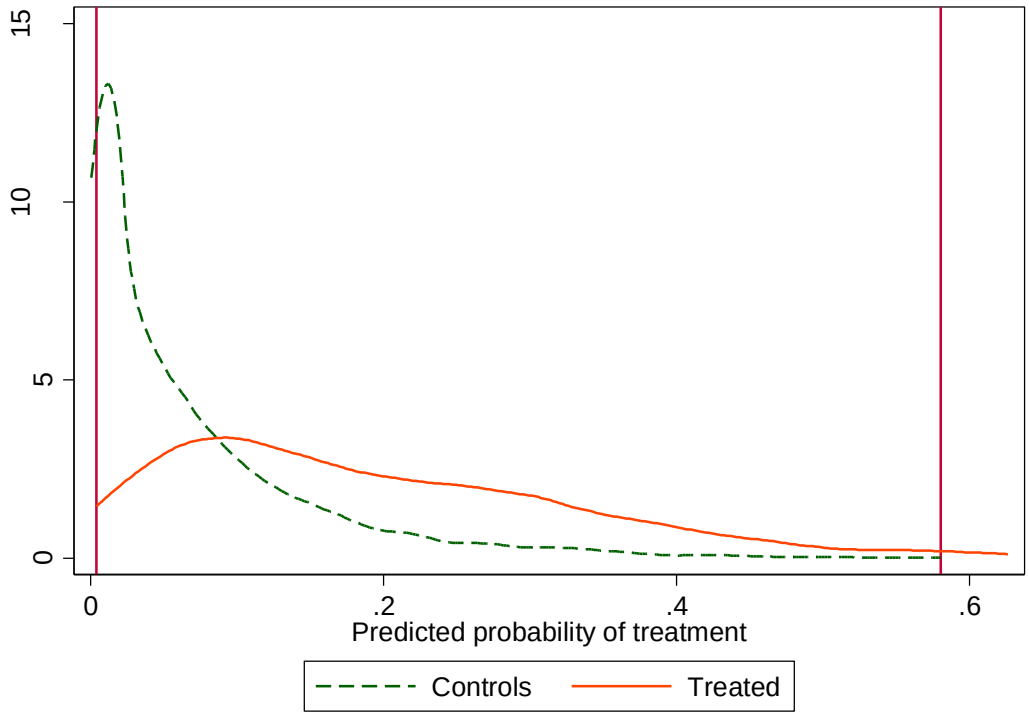


Appendix C: Balance Table and Trimming Regions—Analytic Sample 3

Table C1. *Balance Before and After Applying IPW - Analytic Sample 3.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.53	0.68	0.15	0.31	0.69	0.68	-0.01	-0.02
Days of out of school suspension	0.51	0.41	-0.10	-0.05	0.41	0.41	0.00	0.00
Number of short-term suspensions	0.13	0.11	-0.02	-0.04	0.11	0.11	0.00	0.00
Attendance rate	0.95	0.96	0.01	0.14	0.96	0.96	0.00	0.01
Academically and intellectually gifted	0.07	0.03	-0.04	-0.18	0.02	0.03	0.01	0.02
Student with a disability	0.07	0.06	-0.01	-0.03	0.06	0.06	0.00	-0.01
Limited English proficiency	0.12	0.09	-0.03	-0.10	0.09	0.09	0.00	0.00
Male	0.48	0.30	-0.18	-0.38	0.30	0.30	0.00	0.01
White	0.20	0.02	-0.18	-0.59	0.02	0.02	0.00	0.01
Asian-Pacific Islander	0.05	0.04	-0.01	-0.09	0.04	0.04	0.00	0.00
Black	0.42	0.72	0.30	0.63	0.72	0.72	0.00	-0.01
Hispanic	0.29	0.20	-0.09	-0.22	0.20	0.20	0.00	0.00
American Indian	0.00	0.01	0.01	0.03	0.01	0.01	0.00	0.01
Multi-racial	0.03	0.02	-0.01	-0.07	0.02	0.02	0.00	0.00
Number course failures	0.48	0.33	-0.15	-0.15	0.34	0.33	-0.01	-0.01
Grade point average	2.55	2.61	0.06	0.07	2.60	2.61	0.01	0.02
10th grade (dummy)	0.49	0.60	0.11	0.22	0.60	0.60	0.00	-0.01
School level variables								
School 1	0.02	0.03	0.01	0.08	0.03	0.03	0.00	-0.03
School 2	0.09	0.09	0.00	-0.02	0.09	0.09	0.00	0.00
School 3	0.09	0.07	-0.02	-0.05	0.07	0.07	0.00	0.00
School 4	0.06	0.16	0.10	0.32	0.16	0.16	0.00	-0.02
School 5	0.13	0.13	0.00	-0.02	0.13	0.13	0.00	-0.01
School 6	0.15	0.05	-0.10	-0.34	0.05	0.05	0.00	0.00
School 7	0.09	0.13	0.04	0.12	0.12	0.13	0.01	0.01
School 8	0.15	0.06	-0.09	-0.30	0.06	0.06	0.00	0.01
School 9	0.06	0.13	0.07	0.26	0.13	0.13	0.00	0.00
School 10	0.07	0.04	-0.03	-0.16	0.04	0.04	0.00	0.00
School 11	0.09	0.12	0.03	0.11	0.11	0.12	0.01	0.03
School 12	0.02	0.03	0.01	0.08	0.03	0.03	0.00	-0.03
	Average Std. Diff. = 0.18				Average Std. Diff. = 0.01			

Figure C1. *Trimming Regions - Analytic Sample 3.*

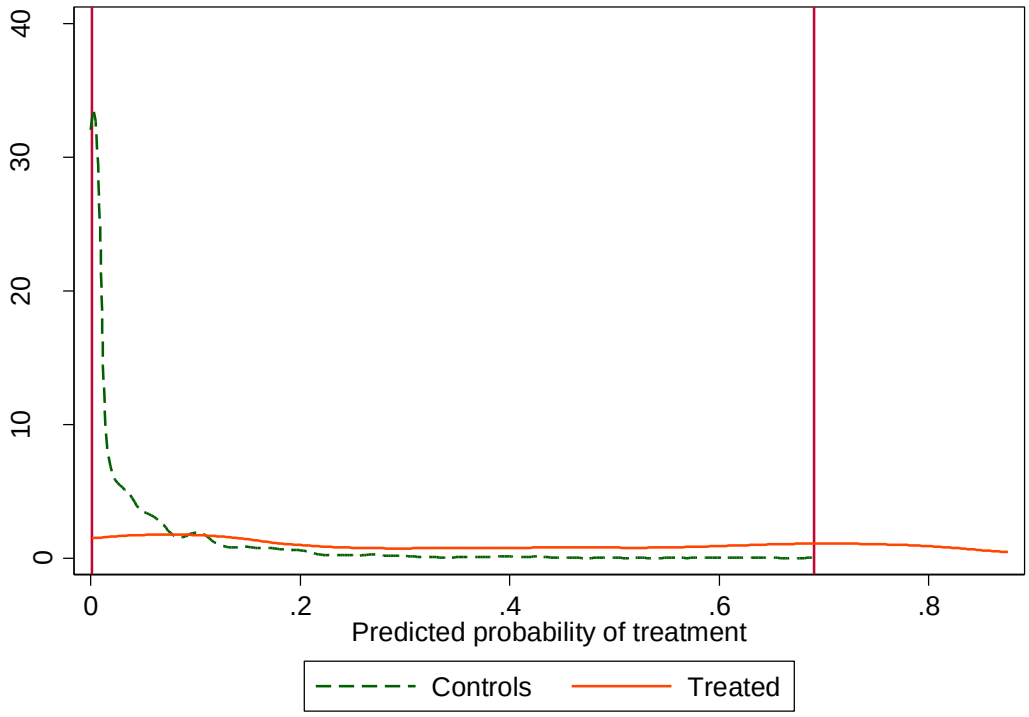


Appendix D: Balance Table and Trimming Regions—Analytic Sample 4

Table D1. *Balance Before and After Applying IPW - Analytic Sample 4.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.43	0.66	0.23	0.49	0.67	0.66	-0.01	-0.01
Days of out of school suspension	0.32	0.43	0.11	0.05	0.43	0.43	0.00	0.00
Number of short-term suspensions	0.08	0.11	0.03	0.07	0.11	0.11	0.00	0.00
Attendance rate	0.96	0.96	0.00	-0.01	0.96	0.96	0.00	-0.01
Academically and intellectually gifted	0.08	0.03	-0.05	-0.22	0.03	0.03	0.00	0.01
Student with a disability	0.06	0.07	0.01	0.05	0.07	0.07	0.00	0.00
Limited English proficiency	0.06	0.08	0.02	0.07	0.08	0.08	0.00	0.00
Male	0.46	0.35	-0.11	-0.23	0.31	0.35	0.04	0.08
White	0.25	0.03	-0.22	-0.68	0.02	0.03	0.01	0.01
Black	0.44	0.69	0.25	0.51	0.70	0.69	-0.01	-0.02
Hispanic	0.19	0.22	0.03	0.06	0.22	0.22	0.00	0.01
Asian-Pacific Islander	0.08	0.04	-0.04	-0.17	0.04	0.04	0.00	0.00
American Indian	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Multi-racial	0.03	0.02	-0.01	-0.07	0.02	0.02	0.00	0.02
Number of credit bearing course failures	0.37	0.36	-0.01	-0.02	0.32	0.36	0.04	0.05
Grade point average	2.72	2.56	-0.16	-0.19	2.61	2.56	-0.05	-0.06
10th grade (dummy)	0.52	0.58	0.06	0.12	0.62	0.58	-0.04	-0.07
School level variables								
Number of students	5454319	4185133	-1269186	-0.48	4121709	4185133	63423	0.02
Percent economically disadvantaged	1664.11	2459.38	795.27	0.90	2483.07	2459.38	-23.69	-0.03
School performance grade score	5587.62	4285.37	-1302.25	-0.90	4340.73	4285.37	-55.36	-0.04
			Average Std. Diff. = 0.27				Average Std. Diff. = 0.02	

Figure D1. *Trimming Regions - Analytic Sample 4.*

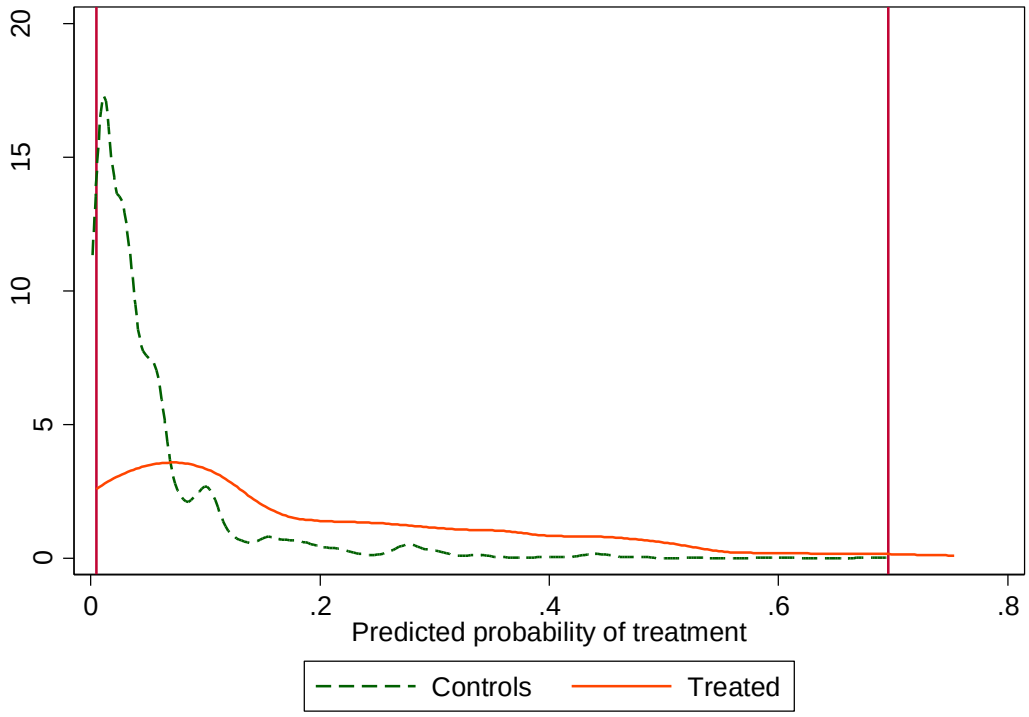


Appendix E: Balance Table and Trimming Regions—Analytic Sample 5

Table E1. *Balance Before and After Applying IPW - Analytic Sample 5.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.55	0.76	0.21	0.44	0.76	0.76	0.00	-0.01
Days of out of school suspension	1.23	2.59	1.36	0.24	2.34	2.59	0.25	0.05
Number of short-term suspensions	0.35	0.69	0.34	0.26	0.64	0.69	0.05	0.04
Attendance rate	0.95	0.94	-0.01	-0.13	0.94	0.94	0.00	-0.01
Academically and intellectually gifted	0.08	0.02	-0.06	-0.27	0.02	0.02	0.00	0.00
Student with a disability	0.09	0.09	0.00	0.00	0.09	0.09	0.00	-0.01
Limited English proficiency	0.12	0.09	-0.03	-0.11	0.09	0.09	0.00	-0.01
Male	0.51	0.45	-0.06	-0.13	0.45	0.45	0.00	-0.01
White	0.18	0.04	-0.14	-0.48	0.03	0.04	0.01	0.02
Black	0.41	0.67	0.26	0.53	0.66	0.67	0.01	0.01
Asian-Pacific Islander	0.06	0.05	-0.01	-0.02	0.06	0.05	-0.01	-0.03
Hispanic	0.31	0.21	-0.10	-0.24	0.22	0.21	-0.01	-0.02
American Indian	0.01	0.01	0.00	0.07	0.01	0.01	0.00	0.04
Multi-racial	0.03	0.02	-0.01	-0.02	0.02	0.02	0.00	0.01
ELA standardized test score	-0.23	-0.52	-0.29	-0.30	-0.51	-0.52	-0.01	-0.01
Math standardized test score	-0.26	-0.61	-0.35	-0.40	-0.60	-0.61	-0.01	-0.01
School level variables								
School 1	0.02	0.01	-0.01	-0.12	0.01	0.01	0.00	0.00
School 2	0.13	0.09	-0.04	-0.14	0.09	0.09	0.00	0.00
School 3	0.07	0.07	0.00	0.02	0.08	0.07	-0.01	-0.01
School 4	0.07	0.11	0.04	0.14	0.11	0.11	0.00	-0.01
School 5	0.11	0.07	-0.04	-0.14	0.07	0.07	0.00	-0.01
School 6	0.01	0.02	0.01	0.05	0.02	0.02	0.00	-0.01
School 7	0.13	0.04	-0.09	-0.36	0.03	0.04	0.01	0.01
School 8	0.11	0.05	-0.06	-0.21	0.06	0.05	-0.01	0.00
School 9	0.00	0.04	0.04	0.26	0.04	0.04	0.00	-0.01
School 10	0.17	0.05	-0.12	-0.39	0.05	0.05	0.00	0.00
School 11	0.04	0.25	0.21	0.62	0.24	0.25	0.01	0.02
School 12	0.06	0.15	0.09	0.31	0.15	0.15	0.00	0.00
	Average Std. Diff. = 0.22				Average Std. Diff. = 0.01			

Figure E1. *Trimming Regions - Analytic Sample 5.*

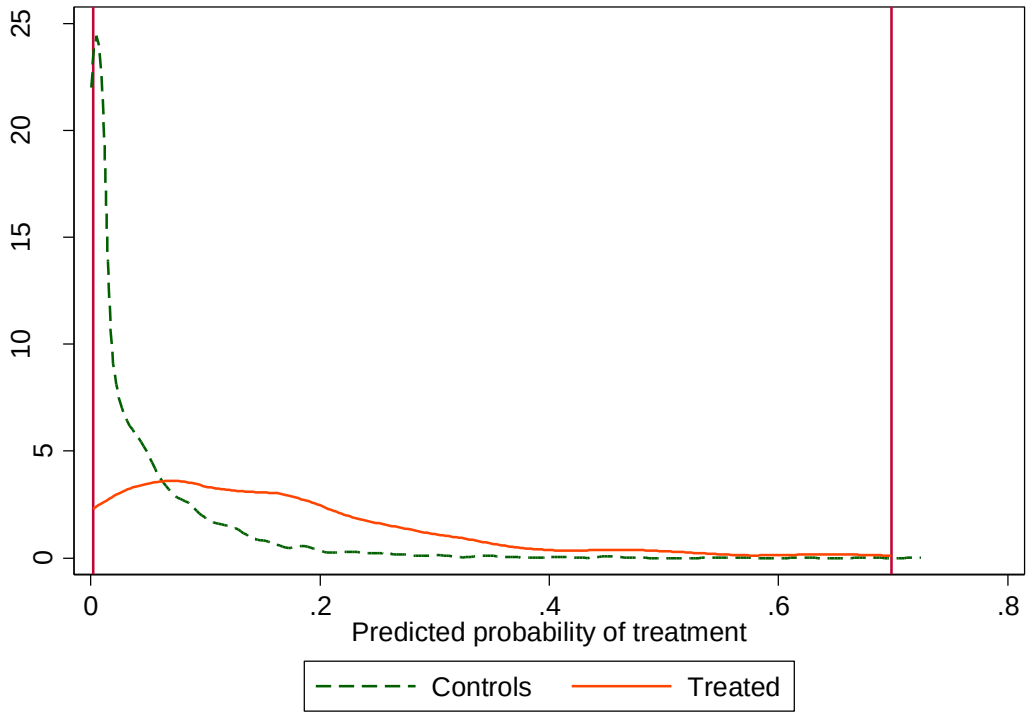


Appendix F: Balance Table and Trimming Regions—Analytic Sample 6

Table F1. *Balance Before and After Applying IPW - Analytic Sample 6.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.48	0.75	0.27	0.58	0.76	0.75	-0.01	-0.01
Days of out of school suspension	0.57	2.44	1.87	0.39	2.02	2.44	0.42	0.09
Number of short-term suspensions	0.17	0.65	0.48	0.43	0.57	0.65	0.08	0.07
Attendance rate	0.96	0.94	-0.02	-0.41	0.95	0.94	-0.01	-0.01
Academically and intellectually gifted	0.09	0.02	-0.07	-0.31	0.02	0.02	0.00	0.00
Student with a disability	0.09	0.08	-0.01	-0.01	0.08	0.08	0.00	0.01
Limited English proficiency	0.05	0.08	0.03	0.12	0.09	0.08	-0.01	-0.03
Male	0.48	0.44	-0.04	-0.08	0.45	0.44	-0.01	-0.03
White	0.19	0.03	-0.16	-0.54	0.03	0.03	0.00	0.01
Black	0.45	0.67	0.22	0.45	0.66	0.67	0.01	0.02
Asian-Pacific Islander	0.09	0.06	-0.03	-0.12	0.06	0.06	0.00	-0.02
Hispanic	0.22	0.21	-0.01	-0.03	0.22	0.21	-0.01	-0.02
American Indian	0.01	0.01	0.00	0.07	0.01	0.01	0.00	0.05
Multi-racial	0.04	0.02	-0.02	-0.10	0.03	0.02	-0.01	-0.02
ELA standardized test score	0.01	-0.49	-0.50	-0.56	-0.49	-0.49	0.00	0.00
Math standardized test score	0.01	-0.59	-0.60	-0.68	-0.58	-0.59	-0.01	0.00
School level variables								
Number of students	4186410	3109351	-1077058	-0.42	3096632	3109351	12719	0.01
Percent economically disadvantaged	1941.68	2662.14	720.46	0.72	2682.83	2662.14	-20.69	-0.02
School performance grade score	5291.30	3810.47	-1480.83	-0.95	3770.07	3810.47	40.40	0.03
			Average Std. Diff. = 0.37				Average Std. Diff. = 0.02	

Figure F1. *Trimming Regions - Analytic Sample 6.*

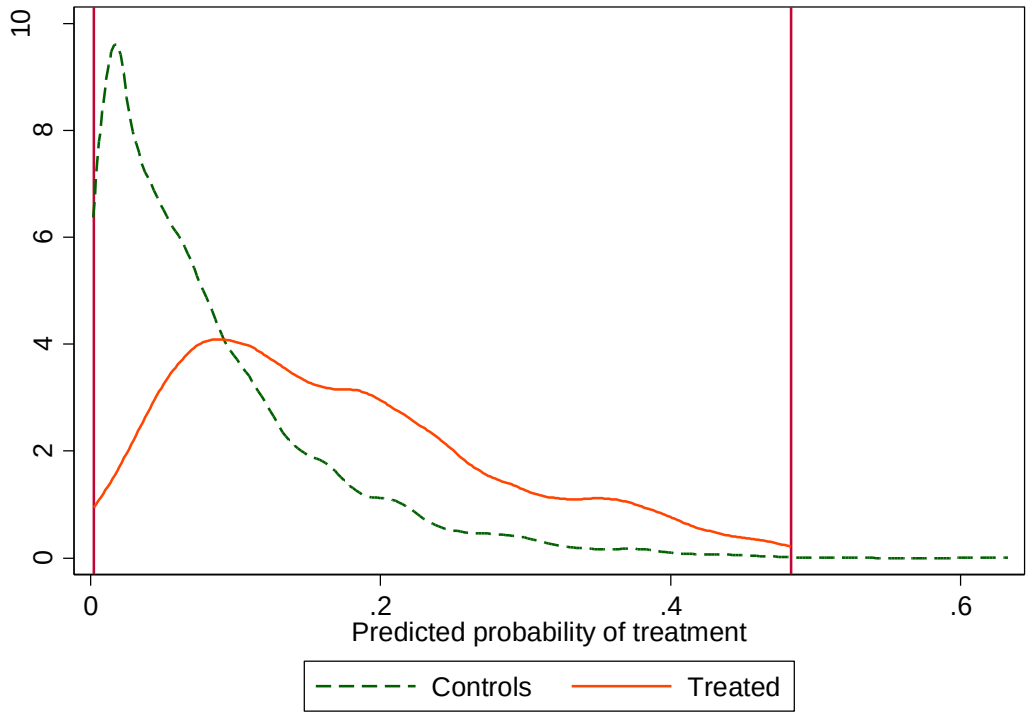


Appendix G: Balance Table and Trimming Regions—Analytic Sample 7

Table G1. *Balance Before and After Applying IPW- Analytic Sample 7.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.50	0.64	0.14	0.29	0.65	0.64	-0.01	0.01
Days of out of school suspension	0.72	1.06	0.34	0.10	1.08	1.06	-0.02	0.01
Number of short-term suspensions	0.18	0.27	0.09	0.11	0.28	0.27	-0.01	0.01
Attendance rate	0.94	0.94	0.00	-0.06	0.93	0.94	0.01	0.02
Academically and intellectually gifted	0.09	0.04	-0.05	-0.19	0.04	0.04	0.00	0.01
Student with a disability	0.07	0.06	-0.01	-0.03	0.06	0.06	0.00	0.00
Limited English proficiency	0.12	0.13	0.01	0.04	0.13	0.13	0.00	0.00
Male	0.53	0.37	-0.16	-0.32	0.38	0.37	-0.01	0.01
White	0.26	0.05	-0.21	-0.63	0.05	0.05	0.00	0.00
Black	0.40	0.65	0.25	0.53	0.65	0.65	0.00	0.00
Hispanic	0.26	0.26	0.00	-0.01	0.26	0.26	0.00	0.00
Asian-Pacific Islander	0.05	0.02	-0.03	-0.14	0.02	0.02	0.00	0.00
American Indian	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Multi-racial	0.03	0.02	-0.01	-0.06	0.02	0.02	0.00	0.00
Number of course failures	0.65	0.68	0.03	0.02	0.71	0.68	-0.03	0.02
Grade point average	2.48	2.33	-0.15	-0.16	2.31	2.33	0.02	0.03
10th grade (dummy)	0.34	0.26	-0.08	-0.18	0.26	0.26	0.00	0.01
11th grade (dummy)	0.29	0.53	0.24	0.49	0.53	0.53	0.00	0.01
School level variables								
School 1	0.01	0.00	-0.01	-0.10	0.00	0.00	0.00	0.00
School 2	0.09	0.06	-0.03	-0.10	0.06	0.06	0.00	0.00
School 3	0.08	0.10	0.02	0.07	0.10	0.10	0.00	0.01
School 4	0.06	0.14	0.08	0.26	0.13	0.14	0.01	0.00
School 5	0.13	0.10	-0.03	-0.08	0.10	0.10	0.00	0.00
School 6	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.01
School 7	0.18	0.03	-0.15	-0.51	0.03	0.03	0.00	0.00
School 8	0.08	0.07	-0.01	-0.03	0.07	0.07	0.00	0.00
School 9	0.00	0.01	0.01	0.10	0.00	0.01	0.01	0.05
School 10	0.16	0.14	-0.02	-0.06	0.14	0.14	0.00	0.01
School 11	0.06	0.12	0.06	0.22	0.12	0.12	0.00	0.02
School 12	0.08	0.09	0.01	0.05	0.09	0.09	0.00	0.00
	Average Std. Diff. = 0.17				Average Std. Diff. = 0.01			

Figure G1. *Trimming Regions - Analytic Sample 7.*

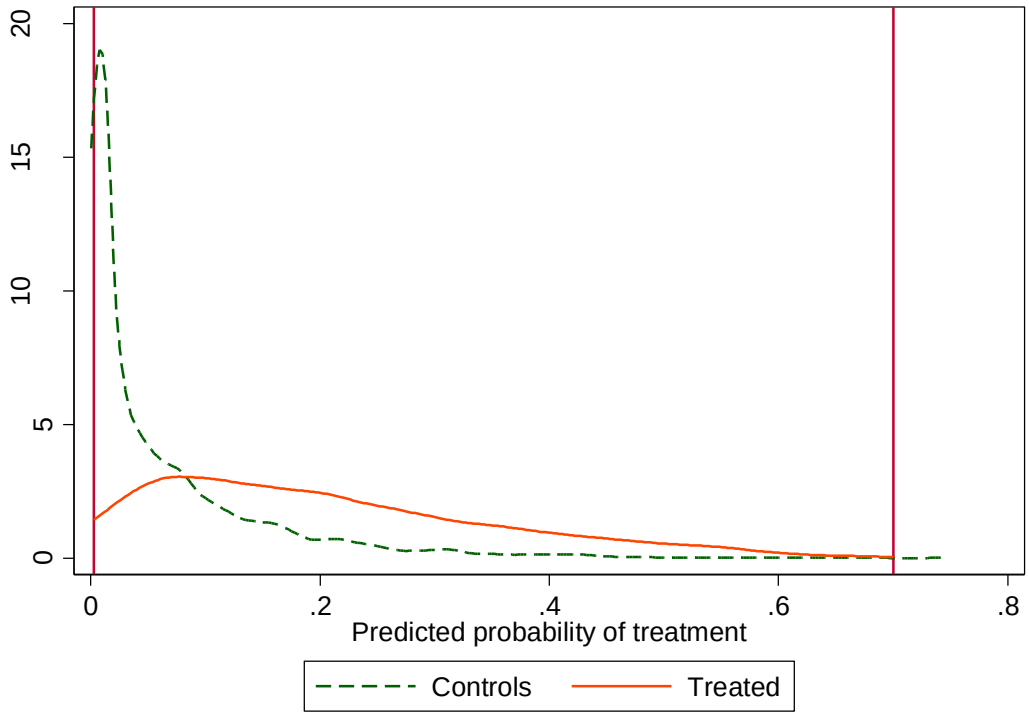


Appendix H: Balance Table and Trimming Regions—Analytic Sample 8

Table H1. *Balance Before and After Applying IPW - Analytic Sample 8.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.38	0.64	0.26	0.54	0.66	0.64	-0.02	-0.03
Days of out of school suspension	0.39	0.99	0.60	0.16	0.95	0.99	0.04	0.01
Number of short-term suspensions	0.09	0.26	0.17	0.23	0.26	0.26	0.00	0.00
Attendance rate	0.95	0.94	-0.01	-0.27	0.94	0.94	0.00	0.01
Academically and intellectually gifted	0.12	0.04	-0.08	-0.27	0.04	0.04	0.00	0.00
Student with a disability	0.06	0.06	0.00	0.00	0.06	0.06	0.00	-0.02
Limited English proficiency	0.06	0.13	0.07	0.25	0.13	0.13	0.00	-0.01
Male	0.48	0.37	-0.11	-0.22	0.37	0.37	0.00	0.00
White	0.34	0.05	-0.29	-0.79	0.05	0.05	0.00	0.00
Black	0.39	0.65	0.26	0.55	0.65	0.65	0.00	0.01
Hispanic	0.17	0.26	0.09	0.22	0.26	0.26	0.00	-0.01
Asian-Pacific Islander	0.07	0.02	-0.05	-0.22	0.02	0.02	0.00	0.00
American Indian	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Multi-racial	0.03	0.02	-0.01	-0.10	0.02	0.02	0.00	0.00
Number of credit bearing course failures	0.40	0.66	0.26	0.22	0.67	0.66	-0.01	0.00
Grade point average	2.72	2.34	-0.38	-0.43	2.33	2.34	0.01	0.01
10th grade (dummy)	0.33	0.25	-0.08	-0.18	0.25	0.25	0.00	0.00
11th grade (dummy)	0.33	0.53	0.20	0.42	0.53	0.53	0.00	0.00
School level variables								
Number of students	4923435	3963214	-960221	-0.34	4055345	3963214	-92130	-0.03
Percent economically disadvantaged	1601.22	2448.62	847.40	0.81	2538.17	2448.62	-89.55	-0.09
School performance grade score	5857.74	4235.15	-1622.59	-0.96	4228.31	4235.15	6.84	0.00
			Average Std. Diff. = 0.34				Average Std. Diff. = 0.02	

Figure H1. *Trimming Regions - Analytic Sample 8.*

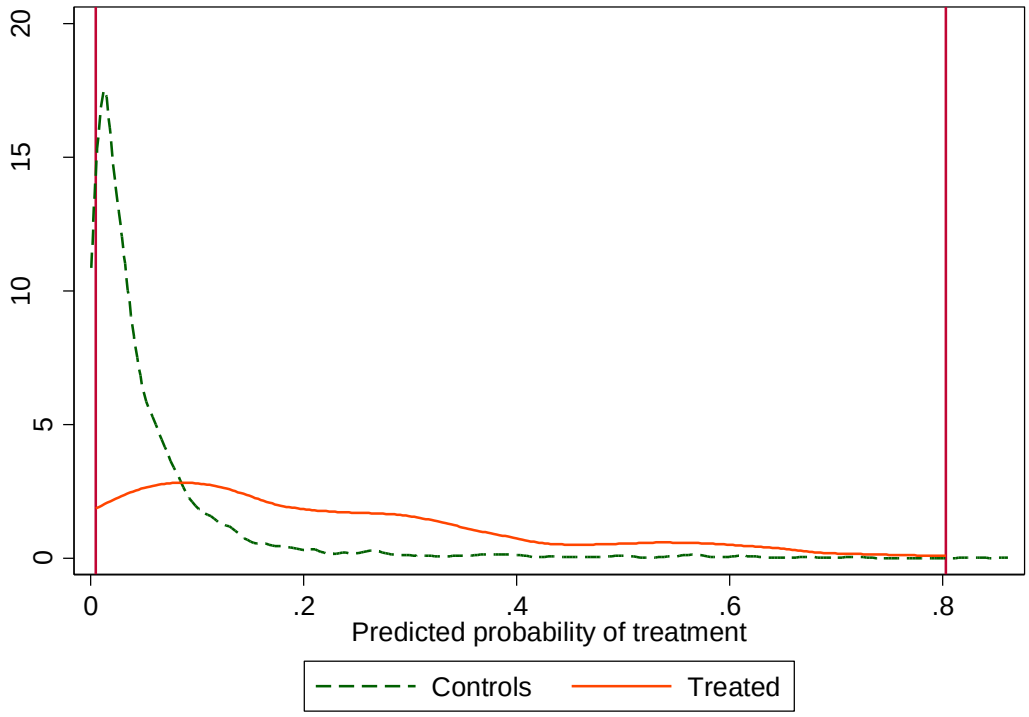


Appendix I: Balance Table and Trimming Regions—Analytic Sample 9

Table I1. *Balance Before and After Applying IPW - Analytic Sample 9.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.60	0.76	0.16	0.35	0.77	0.76	-0.01	-0.01
Days of out of school suspension	1.22	2.00	0.78	0.15	1.89	2.00	0.11	0.02
Number of short-term suspensions	0.33	0.45	0.12	0.11	0.44	0.45	0.01	0.01
Attendance rate	0.94	0.94	0.00	0.00	0.94	0.94	0.00	-0.06
Academically and intellectually gifted	0.02	0.02	0.00	-0.04	0.01	0.02	0.01	0.01
Student with a disability	0.10	0.06	-0.04	-0.13	0.07	0.06	-0.01	-0.01
Limited English proficiency	0.13	0.06	-0.07	-0.24	0.06	0.06	0.00	0.00
Male	0.54	0.37	-0.17	-0.36	0.33	0.37	0.04	0.07
White	0.15	0.04	-0.11	-0.40	0.04	0.04	0.00	0.00
Asian-Pacific Islander	0.04	0.04	0.00	0.00	0.04	0.04	0.00	-0.01
Black	0.45	0.71	0.26	0.54	0.74	0.71	-0.03	-0.06
Hispanic	0.35	0.21	-0.14	-0.31	0.18	0.21	0.03	0.06
American Indian	0.00	0.01	0.01	0.03	0.00	0.01	0.01	0.02
Multi-racial	0.02	0.01	-0.01	-0.11	0.00	0.01	0.01	0.01
ELA standardized test score	-0.52	-0.41	0.11	0.12	-0.32	-0.41	-0.09	-0.10
Math standardized test score	-0.14	-0.15	-0.01	-0.01	-0.04	-0.15	-0.11	-0.11
School level variables								
School 2	0.11	0.06	-0.05	-0.18	0.06	0.06	0.00	0.01
School 3	0.09	0.06	-0.03	-0.12	0.06	0.06	0.00	0.01
School 4	0.10	0.11	0.01	0.03	0.10	0.11	0.01	0.02
School 5	0.12	0.04	-0.08	-0.30	0.04	0.04	0.00	0.01
School 6	0.14	0.06	-0.08	-0.28	0.06	0.06	0.00	0.01
School 7	0.03	0.01	-0.02	-0.18	0.00	0.01	0.01	0.02
School 8	0.00	0.04	0.04	0.28	0.02	0.04	0.02	0.17
School 9	0.19	0.11	-0.08	-0.23	0.11	0.11	0.00	0.01
School 10	0.06	0.36	0.30	0.81	0.42	0.36	-0.06	-0.15
School 11	0.06	0.05	-0.01	-0.01	0.05	0.05	0.00	0.01
School 12	0.10	0.10	0.00	0.00	0.10	0.10	0.00	0.02
	Average Std. Diff. = 0.20				Average Std. Diff. = 0.04			

Figure I1. *Trimming Regions - Analytic Sample 9.*

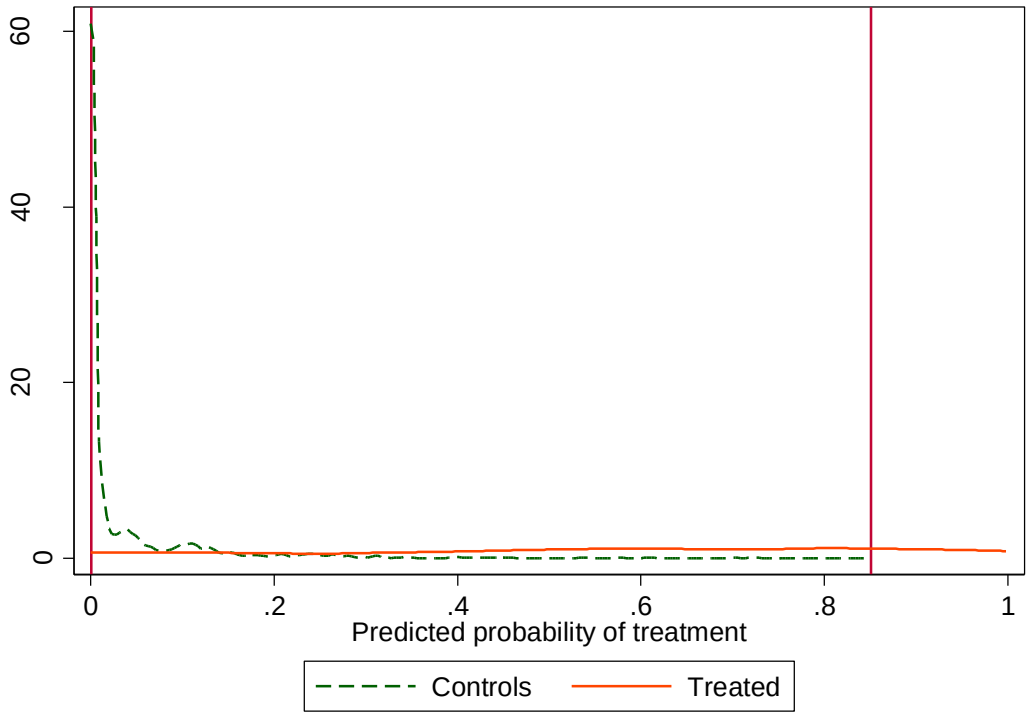


Appendix J: Balance Table and Trimming Regions—Analytic Sample 10

Table J1. *Balance Before and After Applying IPW - Analytic Sample 10.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.61	0.80	0.19	0.424	0.81	0.80	-0.01	-0.023
Days of out of school suspension	0.88	1.41	0.53	0.149	1.60	1.41	-0.19	-0.052
Number of short-term suspensions	0.26	0.35	0.09	0.098	0.39	0.35	-0.04	-0.039
Attendance rate	0.95	0.94	-0.01	-0.207	0.94	0.94	0.00	-0.132
Academically and intellectually gifted	0.03	0.02	-0.01	-0.116	0.02	0.02	0.00	-0.014
Student with a disability	0.11	0.09	-0.02	-0.063	0.07	0.09	0.02	0.084
Limited English proficiency	0.08	0.07	-0.01	-0.055	0.06	0.07	0.01	0.050
Male	0.51	0.40	-0.11	-0.225	0.34	0.40	0.06	0.127
White	0.13	0.04	0.09	-0.339	0.05	0.04	0.01	-0.026
Asian-Pacific Islander	0.04	0.04	0.00	-0.002	0.04	0.04	0.00	-0.001
Black	0.54	0.70	0.16	0.317	0.68	0.70	0.02	0.040
Hispanic	0.25	0.22	-0.03	-0.083	0.23	0.22	-0.01	-0.026
American Indian	0.00	0.00	0.00	-0.048	0.00	0.00	0.00	-0.024
Multi-racial	0.03	0.01	-0.02	-0.161	0.01	0.01	0.00	-0.002
ELA standardized test score	-0.31	-0.42	-0.11	-0.126	-0.23	-0.42	-0.19	-0.229
Math standardized test score	0.07	-0.12	-0.19	-0.199	0.08	-0.12	-0.20	-0.216
School level variables								
Number of students	4921037	4261327	-659710	-0.228	3712217	4261327	549110	0.190
Percent economically disadvantaged	2047.87	2372.85	324.98	0.403	2148.1	2372.85	224.75	0.279
School performance grade score	5069.65	3872.47	-1197.18	-0.91	3773.66	3872.47	98.81	0.075
			Average Std. Diff. = 0.21				Average Std. Diff. = 0.09	

Figure J1. *Trimming Regions - Analytic Sample 10.*

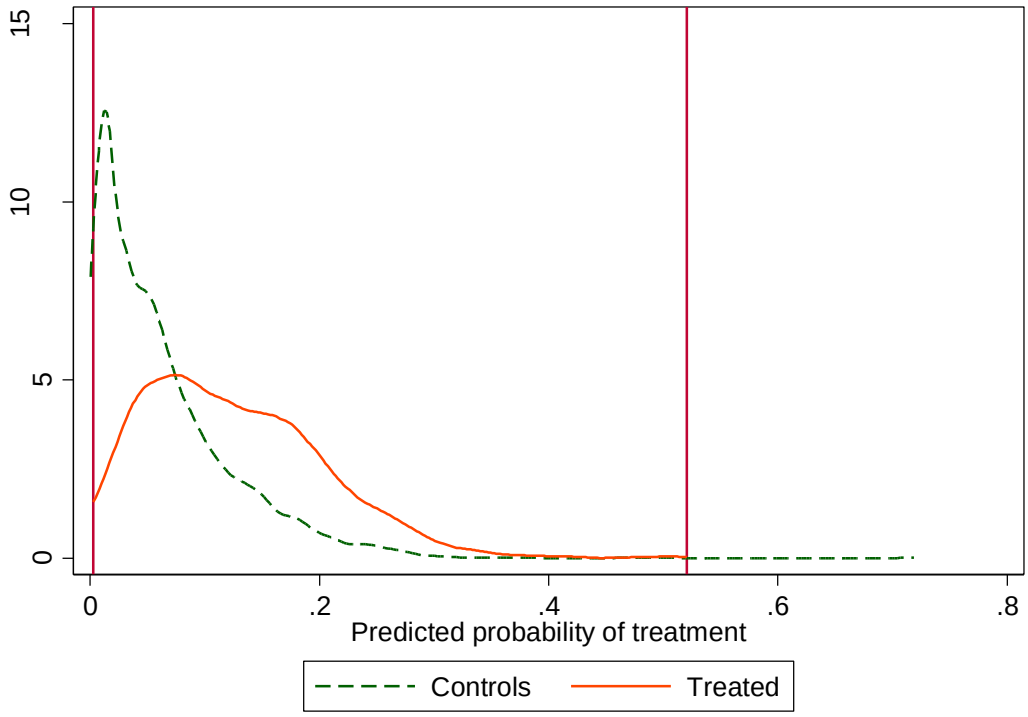


Appendix K: Balance Table and Trimming Regions—Analytic Sample 11

Table K1. *Balance Before and After Applying IPW - Analytic Sample 11*.

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.49	0.59	0.10	0.21	0.60	0.59	-0.01	0.00
Days of out of school suspension	0.53	0.50	-0.03	-0.01	0.51	0.50	-0.01	0.00
Number of short-term suspensions	0.15	0.14	-0.01	-0.01	0.15	0.14	-0.01	-0.01
Attendance rate	0.94	0.95	0.01	0.19	0.95	0.95	0.00	0.00
Academically and intellectually gifted	0.09	0.05	-0.04	-0.16	0.05	0.05	0.00	0.00
Student with a disability	0.06	0.05	-0.01	-0.07	0.05	0.05	0.00	0.00
Limited English proficiency	0.10	0.08	-0.02	-0.08	0.08	0.08	0.00	0.00
Male	0.52	0.33	-0.19	-0.41	0.33	0.33	0.00	0.00
White	0.26	0.07	-0.19	-0.51	0.08	0.07	-0.01	0.00
Asian-Pacific Islander	0.05	0.06	0.01	0.03	0.06	0.06	0.00	0.00
Black	0.39	0.60	0.21	0.44	0.60	0.60	0.00	0.01
Hispanic	0.27	0.24	-0.03	-0.08	0.24	0.24	0.00	0.00
American Indian	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.00
Multi-racial	0.03	0.02	-0.01	-0.01	0.02	0.02	0.00	0.00
Number of course failures	0.58	0.31	-0.27	-0.25	0.31	0.31	0.00	0.00
Grade point average	2.51	2.66	0.15	0.16	2.65	2.66	0.01	0.01
10th grade (dummy)	0.35	0.35	0.00	-0.01	0.35	0.35	0.00	0.00
11th grade (dummy)	0.28	0.29	0.01	0.00	0.28	0.29	0.01	0.01
School level variables								
School 1	0.01	0.00	-0.01	-0.13	0.00	0.00	0.00	0.00
School 2	0.10	0.14	0.04	0.13	0.14	0.14	0.00	0.00
School 3	0.08	0.05	-0.03	-0.10	0.06	0.05	-0.01	-0.01
School 4	0.06	0.11	0.05	0.19	0.11	0.11	0.00	0.00
School 5	0.12	0.12	0.00	-0.01	0.12	0.12	0.00	0.00
School 6	0.18	0.03	-0.15	-0.52	0.03	0.03	0.00	0.00
School 7	0.09	0.11	0.02	0.08	0.11	0.11	0.00	0.00
School 8	0.00	0.01	0.01	0.08	0.01	0.01	0.00	0.00
School 9	0.17	0.18	0.01	0.03	0.18	0.18	0.00	0.01
School 10	0.04	0.07	0.03	0.09	0.07	0.07	0.00	-0.01
School 11	0.06	0.06	0.00	-0.02	0.06	0.06	0.00	0.00
School 12	0.09	0.13	0.04	0.13	0.13	0.13	0.00	0.01
	Average Std. Diff. = 0.14				Average Std. Diff. = 0.00			

Figure K1. *Trimming Regions - Analytic Sample 11.*

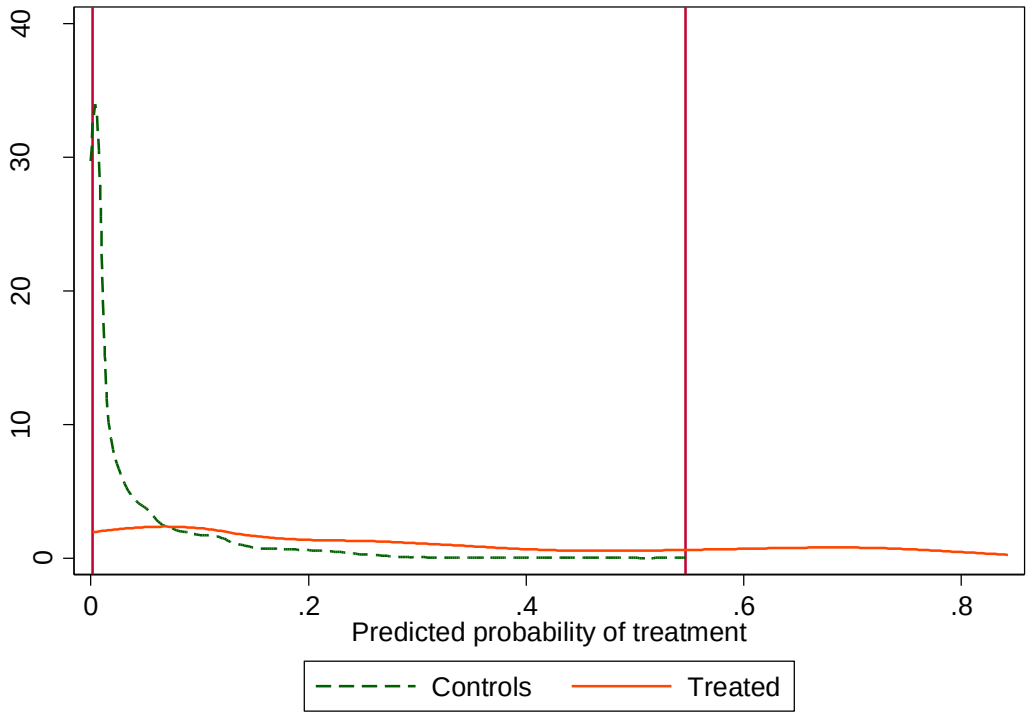


Appendix L: Balance Table and Trimming Regions—Analytic Sample 12

Table L1. *Balance Before and After Applying IPW - Analytic Sample 12.*

	Unweighted Means				Weighted Means			
Variable	C	T	Raw Diff.	Std. Diff.	C	T	Raw Diff.	Std. Diff.
Student level variables								
Economically disadvantaged status	0.39	0.57	0.18	0.37	0.59	0.57	-0.02	-0.03
Days of out of school suspension	0.36	0.56	0.20	0.09	0.50	0.56	0.06	0.03
Number of short-term suspensions	0.10	0.16	0.06	0.10	0.14	0.16	0.02	0.03
Attendance rate	0.95	0.95	0.00	0.04	0.95	0.95	0.00	-0.03
Academically and intellectually gifted	0.11	0.06	-0.05	-0.18	0.06	0.06	0.00	0.00
Student with a disability	0.05	0.05	0.00	0.00	0.04	0.05	0.01	0.04
Limited English proficiency	0.05	0.07	0.02	0.09	0.07	0.07	0.00	0.01
Male	0.48	0.35	-0.13	-0.26	0.33	0.35	0.02	0.05
White	0.32	0.09	-0.23	-0.58	0.08	0.09	0.01	0.02
Asian-Pacific Islander	0.07	0.06	-0.01	-0.03	0.06	0.06	0.00	0.02
Black	0.39	0.56	0.17	0.35	0.57	0.56	-0.01	-0.02
Hispanic	0.18	0.25	0.07	0.16	0.25	0.25	0.00	0.00
American Indian	0.00	0.01	0.01	0.03	0.01	0.01	0.00	-0.01
Multi-racial	0.03	0.03	0.00	-0.04	0.03	0.03	0.00	0.00
Number of credit bearing course failures	0.43	0.35	-0.08	-0.08	0.31	0.35	0.04	0.04
Grade point average	2.72	2.63	-0.09	-0.10	2.68	2.63	-0.05	-0.05
10th grade (dummy)	0.33	0.35	0.02	0.04	0.36	0.35	-0.01	-0.01
11th grade (dummy)	0.31	0.30	-0.01	-0.01	0.28	0.30	0.02	0.04
School level variables								
Number of students	5957421	5115710	-841710	-0.29	4734056	5115710	381653	0.13
Percent economically disadvantaged	1526.53	2314.93	788.40	0.87	2363.37	2314.93	-48.44	-0.05
School performance grade score	5833.23	4818.27	-1014.96	-0.72	4613.60	4818.27	204.67	0.15
			Average Std. Diff. = 0.21				Average Std. Diff. = 0.04	

Figure L1. *Trimming Regions - Analytic Sample 12.*



Appendix M: Regression Outputs—Analytic Sample 1

Table M1. *Analytic Sample 1 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS for 2 years	0.021**
	(0.007)
Economically disadvantaged status	-0.010*
	(0.004)
Days of out-of-school suspension (Year 0)	0.001
	(0.003)
Number of short-term suspensions (Year 0)	-0.022*
	(0.010)
Attendance rate (Year 0)	0.655***
	(0.049)
Academically and intellectually gifted	-0.005
	(0.007)
Student with a disability status	0.015
	(0.009)
Limited English proficiency	0.014**
	(0.004)
Male	0.010***
	(0.002)
Asian-Pacific Islander	-0.010
	(0.007)
Black	-0.004
	(0.005)
Hispanic	-0.016*
	(0.006)
American Indian	-0.032
	(0.038)
Multiracial	-0.022
	(0.010)
Standardized ELA test score (Year 0)	0.009
	(0.005)
Standardized Math test score (Year 0)	0.011***
	(0.003)
8th grade (dummy)	-0.015*
	(0.005)
School 2	-0.014***
	(0.001)
School 3	-0.009***
	(0.001)
School 4	-0.022***
	(0.002)
School 5	-0.014***
	(0.001)
School 6	-0.035***

	(0.001)
School 7	-0.005*
	(0.002)
School 8	-0.008*
	(0.003)
School 9	-0.009***
	(0.001)
School 10	-0.041***
	(0.002)
School 11	-0.032***
	(0.001)
School 12	-0.017***
	(0.002)
Constant	0.341***
	(0.046)
Observations	7,139
R-squared (Pseudo R-Squared)	0.243

Note. Significance: *p<.05, **p<.01, ***p<.001

Table M2. *Analytic Sample 1 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.203	.243	-.040
Observations	7166	

Table M3. *Analytic Sample 1 - Results for the Effect of CIS on Behavior*.

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspensions
Served by CIS for 2 years	-0.275	-0.013
	(0.376)	(0.076)
Economically disadvantaged status	0.296	0.059
	(0.157)	(0.031)
Days of out-of-school suspension (Year 0)	-0.153	-0.012
	(0.134)	(0.038)
Number of short-term suspensions (Year 0)	2.537**	0.447*
	(0.586)	(0.184)
Attendance rate (Year 0)	-2.771	-0.702
	(2.189)	(0.468)
Academically and intellectually gifted	0.402	0.145

	(0.242)	(0.067)
Student with a disability status	-1.222**	-0.256**
	(0.336)	(0.076)
Limited English proficiency	-0.936***	-0.238**
	(0.203)	(0.059)
Male	-0.085	0.043
	(0.092)	(0.031)
Asian-Pacific Islander	0.716*	0.167**
	(0.231)	(0.043)
Black	0.970**	0.226***
	(0.237)	(0.041)
Hispanic	0.286	0.069
	(0.172)	(0.053)
American Indian	1.510	0.079
	(1.263)	(0.151)
Multiracial	0.895	0.087
	(1.050)	(0.168)
Standardized ELA test score (Year 0)	-0.403	-0.119*
	(0.185)	(0.048)
Standardized Math test score (Year 0)	-0.549*	-0.131*
	(0.188)	(0.056)
8th grade (dummy)	-0.276	-0.025
	(0.194)	(0.051)
School 2	1.583***	0.403***
	(0.110)	(0.030)
School 3	0.791***	0.169***
	(0.089)	(0.022)
School 4	1.192***	0.252***
	(0.121)	(0.027)
School 5	0.956***	0.186***
	(0.076)	(0.019)
School 6	2.439***	0.431***
	(0.059)	(0.018)
School 7	0.833***	0.185***
	(0.116)	(0.035)
School 8	1.959***	0.292***
	(0.157)	(0.039)
School 9	0.770***	0.162***
	(0.079)	(0.019)
School 10	1.545***	0.414***
	(0.130)	(0.025)
School 11	0.618***	0.112***
	(0.076)	(0.017)
School 12	0.486***	0.048
	(0.100)	(0.025)
Constant	1.377	0.362
	(1.941)	(0.445)
Observations	7,166	7,166
R-squared	0.140	0.216

Note. Significance: *p<.05, **p<.01, ***p<.001

Table M4. *Analytic Sample 1 - Results for the Effect of CIS on End of Course Tests*.

Variables	Biology	English 2	Math 3	Math 1
Served by CIS for 2 years	0.103*	0.054	-0.094	0.095
	(0.045)	(0.031)	(0.055)	(0.047)
Economically disadvantaged status	-0.209**	-0.095	-0.088	0.118
	(0.060)	(0.044)	(0.092)	(0.093)
Days of out-of-school suspension (Year 0)	0.003	0.008	-0.114	0.010
	(0.009)	(0.016)	(0.071)	(0.013)
Number of short-term suspensions (Year 0)	-0.139***	-0.105	0.166	-0.123
	(0.027)	(0.069)	(0.211)	(0.072)
Attendance rate (Year 0)	1.102	-1.299**	1.538	0.842*
	(0.725)	(0.320)	(1.771)	(0.306)
Academically and intellectually gifted	0.072	0.242**	0.434**	-0.213
	(0.128)	(0.067)	(0.107)	(0.256)
Student with a disability status	-0.108	-0.365**	-0.309	0.041
	(0.113)	(0.092)	(0.164)	(0.112)
Limited English proficiency	0.056	0.004	0.469*	0.094
	(0.118)	(0.080)	(0.159)	(0.235)
Male	0.039	-0.075	0.033	-0.082
	(0.062)	(0.063)	(0.101)	(0.063)
Asian-Pacific Islander	-0.048	0.116	0.009	-0.049
	(0.165)	(0.134)	(0.070)	(0.228)
Black	-0.090	-0.002	-0.170	-0.494*
	(0.111)	(0.057)	(0.093)	(0.186)
Hispanic	-0.089	0.039	-0.145	-0.382
	(0.102)	(0.070)	(0.090)	(0.185)
American Indian	0.235	0.291	-0.183	-1.130*
	(0.165)	(0.297)	(0.111)	(0.453)
Multiracial	-0.235	0.115	0.006	-0.165
	(0.131)	(0.147)	(0.164)	(0.323)
Standardized ELA test score (Year 0)	0.499***	0.544***	0.144	0.270***
	(0.057)	(0.024)	(0.086)	(0.042)
Standardized Math test score (Year 0)	0.438***	0.235***	0.720***	0.726***
	(0.056)	(0.033)	(0.122)	(0.039)
8th grade (dummy)	0.841***	-0.226	1.108***	0.353**
	(0.113)	(0.440)	(0.160)	(0.091)
School 2	-0.224*	0.092**	-0.061	-0.200***
	(0.079)	(0.021)	(0.045)	(0.043)
School 3	0.283***	0.161***	-0.074	0.285***
	(0.023)	(0.010)	(0.065)	(0.025)
School 4	-0.013	-0.077**	-0.665***	-0.121***
	(0.038)	(0.021)	(0.043)	(0.023)
School 5	-0.021	0.174***	0.241**	0.434***
	(0.022)	(0.029)	(0.059)	(0.037)
School 6	-0.228***	0.138***	-0.364***	-0.142***
	(0.028)	(0.017)	(0.055)	(0.029)

School 7	-0.125**	0.106*	0.061	-0.244*
	(0.036)	(0.041)	(0.052)	(0.083)
School 8	-0.486***	-0.122**	-0.172	-0.871***
	(0.054)	(0.028)	(0.133)	(0.127)
School 9	-0.393***	-0.038	-0.284**	0.221**
	(0.032)	(0.031)	(0.069)	(0.055)
School 10	0.189***	0.048	-0.222***	-0.080*
	(0.035)	(0.023)	(0.046)	(0.026)
School 11	0.218***	-0.146***	-0.903***	-0.032
	(0.025)	(0.020)	(0.051)	(0.037)
School 12	-0.197***	-0.076**	-0.152	-0.005
	(0.023)	(0.021)	(0.069)	(0.020)
Constant	-1.564*	1.427*	-2.821	0.010
	(0.676)	(0.568)	(1.793)	(0.374)
Observations	3,189	3,342	1,361	2,388
R-squared	0.595	0.665	0.623	0.564

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table M5. *Analytic Sample 1 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.005	.027	-.022
Observations	7166	

Appendix N: Regression Outputs—Analytic Sample 2

Table N1. *Analytic Sample 2 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS for 2 years	-0.008
	(0.005)
Economically disadvantaged status	-0.007
	(0.004)
Days of out-of-school suspension (Year 0)	0.001
	(0.003)
Number of short-term suspensions (Year 0)	-0.016
	(0.011)
Attendance rate (Year 0)	0.551***
	(0.080)
Academically and intellectually gifted	-0.004
	(0.006)
Student with a disability status	-0.001
	(0.016)
Limited English proficiency	-0.003
	(0.006)
Male	0.013**
	(0.004)
Asian-Pacific Islander	-0.003
	(0.009)
Black	-0.005
	(0.008)
Hispanic	-0.008
	(0.010)
American Indian	-0.028
	(0.023)
Multiracial	-0.024*
	(0.011)
Standardized ELA test score (Year 0)	0.003
	(0.006)
Standardized Math test score (Year 0)	0.010*
	(0.005)
8th grade (dummy)	-0.009*
	(0.004)
Average number of students (squared)	-0.000
	(0.000)
% economically disadvantaged (squared)	-0.000
	(0.000)
School performance score (squared)	0.000
	(0.000)
Constant	0.450***
	(0.081)
Observations	7,034

R-squared	0.274

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Analytic Sample 2 - Results for the Effect of CIS on Chronic Absenteeism

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.179	.136	.043
Observations		7046

Table N2. *Analytic Sample 2 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS for 2 years	0.062	0.087
	(0.191)	(0.054)
Economically disadvantaged status	0.370	0.066
	(0.218)	(0.052)
Days of out-of-school suspension (Year 0)	0.073	0.048
	(0.160)	(0.039)
Number of short-term suspensions (Year 0)	0.907	0.130
	(0.490)	(0.122)
Attendance rate (Year 0)	-11.662*	-2.152
	(4.588)	(1.047)
Academically and intellectually gifted	0.583	0.216*
	(0.357)	(0.082)
Student with a disability status	-0.369	-0.265
	(0.590)	(0.128)
Limited English proficiency	-0.265	-0.042
	(0.301)	(0.078)
Male	0.064	-0.024
	(0.329)	(0.038)
Asian-Pacific Islander	0.459	0.133
	(0.307)	(0.080)
Black	0.858*	0.253*
	(0.401)	(0.103)
Hispanic	0.334	0.094
	(0.363)	(0.096)
American Indian	1.708	0.518
	(1.692)	(0.463)
Multiracial	2.544	0.286
	(1.368)	(0.155)
Standardized ELA test score (Year 0)	-0.084	-0.061
	(0.216)	(0.053)
Standardized Math test score (Year 0)	-0.591	-0.130
	(0.326)	(0.069)
8th grade (dummy)	-0.150	-0.035

	(0.178)	(0.037)
Average Number of Students (squared)	0.000	0.000
	(0.000)	(0.000)
% Economically Disadvantaged (squared)	0.000**	0.000
	(0.000)	(0.000)
School Performance Score (squared)	-0.000	-0.000
	(0.000)	(0.000)
Constant	9.534*	1.770
	(4.192)	(0.952)
Observations	7,046	7,046
R-squared	0.072	0.192

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table N3. Analytic Sample 2 - Results for the Effect of CIS on End of Course Tests.

Variables	Biology	English 2	Math 1
Served by CIS for 2 years	0.124	-0.002	0.056
	(0.092)	(0.039)	(0.105)
Economically disadvantaged status	-0.133	-0.079	0.038
	(0.082)	(0.046)	(0.108)
Days of out-of-school suspension (Year 0)	-0.021	0.034	0.021
	(0.012)	(0.022)	(0.020)
Number of short-term suspensions (Year 0)	-0.061	-0.214**	-0.180
	(0.048)	(0.076)	(0.107)
Attendance rate (Year 0)	1.415*	1.224	0.638
	(0.535)	(1.333)	(0.483)
Academically and intellectually gifted	-0.088	0.063	-0.200
	(0.113)	(0.062)	(0.312)
Student with a disability status	-0.130	-0.214	-0.014
	(0.125)	(0.166)	(0.126)
Limited English proficiency	-0.032	-0.095	-0.114
	(0.107)	(0.110)	(0.200)
Male	0.049	-0.092	0.003
	(0.063)	(0.065)	(0.059)
Asian-Pacific Islander	0.126	0.022	0.011
	(0.121)	(0.159)	(0.281)
Black	-0.105	-0.064	-0.590
	(0.062)	(0.071)	(0.296)
Hispanic	-0.186**	0.013	-0.523*
	(0.059)	(0.067)	(0.246)
American Indian	0.373*	0.421*	-1.835**
	(0.163)	(0.185)	(0.555)
Multiracial	-0.226	-0.014	-0.168
	(0.155)	(0.194)	(0.349)
Standardized ELA test score (Year 0)	0.486***	0.550***	0.299***
	(0.059)	(0.044)	(0.058)

Standardized Math test score (Year 0)	0.450***	0.269***	0.746***
	(0.069)	(0.033)	(0.041)
8th grade (dummy)	0.830***	-0.594*	0.259
	(0.115)	(0.216)	(0.142)
Average number of students (squared)	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
School performance score (squared)	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Constant	-1.695**	-0.645	0.097
	(0.509)	(1.230)	(0.604)
Observations	3,330	3,755	1,956
R-squared	0.602	0.663	0.597

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Appendix O: Regression Outputs—Analytic Sample 3

Table O1. *Analytic Sample 3 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS for 2 years	0.012*
	(0.004)
Economically disadvantaged status	-0.010*
	(0.004)
Days of out-of-school suspension (Year 0)	0.004
	(0.002)
Number of short-term suspensions (Year 0)	-0.007
	(0.012)
Attendance rate (Year 0)	0.680***
	(0.097)
Academically and intellectually gifted	0.006
	(0.005)
Student with a disability status	-0.003
	(0.007)
Limited English proficiency	0.016
	(0.008)
Male	0.007
	(0.003)
Asian-Pacific Islander	0.020
	(0.026)
Black	0.014
	(0.024)
Hispanic	0.011
	(0.025)
American Indian	0.033
	(0.047)
Multiracial	0.012
	(0.024)
Number of core course failures (Year 0)	0.003
	(0.004)
Grade point average (Year 0)	0.015**
	(0.004)
10th grade (dummy)	-0.018**
	(0.005)
School 2	0.028***
	(0.001)
School 3	0.018***
	(0.004)
School 4	0.004
	(0.002)
School 5	0.027***
	(0.002)
School 6	0.018***

	(0.003)
School 7	0.028***
	(0.002)
School 9	0.003*
	(0.001)
School 10	-0.005*
	(0.002)
School 11	0.006**
	(0.002)
School 12	0.021***
	(0.002)
Constant	0.210
	(0.108)
Observations	6,266
R-squared	0.201

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table O2. *Analytic Sample 3 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.204	.227	-.023
Observations	6318	

Table O3. *Analytic Sample 3 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS for 2 years	0.038	0.012
	(0.069)	(0.020)
Economically disadvantaged status	0.083	0.020
	(0.071)	(0.013)
Days of out-of-school suspension (Year 0)	0.001	-0.004
	(0.026)	(0.008)
Number of short-term suspensions (Year 0)	0.720**	0.238***
	(0.166)	(0.050)
Attendance rate (Year 0)	1.208	0.185
	(1.129)	(0.222)
Academically and intellectually gifted	-0.095	-0.040
	(0.101)	(0.024)
Student with a disability status	-0.209	-0.031
	(0.140)	(0.042)

Limited English proficiency	-0.232	-0.056*
	(0.113)	(0.022)
Male	0.199	0.032
	(0.166)	(0.028)
Asian-Pacific Islander	0.114	0.025
	(0.086)	(0.018)
Black	0.219**	0.056**
	(0.068)	(0.015)
Hispanic	-0.025	-0.000
	(0.044)	(0.013)
American Indian	-0.397	0.030
	(0.195)	(0.126)
Multiracial	0.078	0.052
	(0.066)	(0.049)
Number of core course failures (Year 0)	0.099	0.019
	(0.110)	(0.029)
Grade point average (Year 0)	-0.099	-0.035*
	(0.061)	(0.011)
10th grade (dummy)	-0.344*	-0.075*
	(0.111)	(0.025)
School 2	0.289***	0.006
	(0.020)	(0.003)
School 3	0.408***	0.024
	(0.072)	(0.021)
School 4	0.571***	0.054**
	(0.064)	(0.015)
School 5	0.085*	-0.033***
	(0.031)	(0.007)
School 6	0.319***	0.029*
	(0.043)	(0.012)
School 7	0.186**	0.005
	(0.042)	(0.006)
School 9	0.231***	-0.003
	(0.029)	(0.004)
School 10	0.412***	0.096***
	(0.037)	(0.009)
School 11	0.088	-0.060***
	(0.046)	(0.011)
School 12	0.427***	-0.001
	(0.032)	(0.007)
Constant	-0.998	-0.048
	(1.007)	(0.193)
Observations	6,318	6,318
R-squared	0.073	0.108

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table O4. *Analytic Sample 4 - Results for the Effect of CIS on Grade Point Average & Math 3 End of Course Test.*

Variables	Unweighted GPA	Weighted GPA	Math 3
Served by CIS for 2 years	0.027	0.043	0.028
	(0.019)	(0.024)	(0.050)
Economically disadvantaged status	-0.067*	-0.088**	0.046
	(0.023)	(0.027)	(0.050)
Days of out-of-school suspension (Year 0)	0.029***	0.030**	0.093***
	(0.006)	(0.007)	(0.016)
Number of short-term suspensions (Year 0)	-0.082*	-0.088*	-0.412***
	(0.032)	(0.031)	(0.079)
Attendance rate (Year 0)	0.480*	0.750*	-1.943
	(0.196)	(0.266)	(0.910)
Academically and intellectually gifted	0.098**	0.196**	1.162**
	(0.024)	(0.048)	(0.312)
Student with a disability status	-0.127*	-0.186***	-0.166
	(0.045)	(0.040)	(0.107)
Limited English proficiency	-0.030	-0.129**	-0.217
	(0.037)	(0.038)	(0.102)
Male	-0.029	-0.034	0.146*
	(0.036)	(0.041)	(0.064)
Asian-Pacific Islander	-0.001	-0.066	0.269
	(0.079)	(0.061)	(0.274)
Black	-0.078	-0.186**	0.101
	(0.065)	(0.049)	(0.194)
Hispanic	-0.070	-0.129	0.393
	(0.077)	(0.063)	(0.250)
American Indian	-0.083	-0.130	0.111
	(0.104)	(0.121)	(0.206)
Multiracial	-0.047	-0.075	0.250
	(0.106)	(0.097)	(0.390)
Number of core course failures (Year 0)	0.092**	0.132***	0.117*
	(0.021)	(0.019)	(0.037)
Grade point average (Year 0)	0.821***	0.965***	0.660***
	(0.019)	(0.022)	(0.055)
10th grade (dummy)	0.199**	0.224***	0.484***
	(0.045)	(0.045)	(0.100)
School 2	0.037**	0.236***	0.142***
	(0.008)	(0.009)	(0.025)
School 3	0.190***	0.260***	0.098**
	(0.017)	(0.019)	(0.031)
School 4	0.178***	0.257***	-0.180***
	(0.011)	(0.011)	(0.026)
School 5	0.184***	0.250***	0.506***
	(0.013)	(0.011)	(0.031)
School 6	0.098***	0.235***	-0.112***
	(0.016)	(0.016)	(0.024)
School 7	0.166***	0.398***	0.369***

	(0.010)	(0.011)	(0.033)
School 9	0.141***	0.290***	0.289***
	(0.010)	(0.011)	(0.033)
School 10	0.074***	0.211***	0.257***
	(0.012)	(0.013)	(0.040)
School 11	0.072***	0.099***	-0.252***
	(0.011)	(0.011)	(0.035)
School 12	0.228***	0.301***	0.131**
	(0.010)	(0.011)	(0.039)
Constant	-0.229	-0.696*	-0.303
	(0.227)	(0.255)	(0.946)
Observations	2,723	2,723	1,900
R-squared	0.826	0.834	0.349

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table O5. *Analytic Sample 3 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.007	.022	-.016
Observations	5902	

Appendix P: Regression Outputs—Analytic Sample 4

Table P1. *Analytic Sample 4 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS for 2 years	-0.002
	(0.004)
Economically disadvantaged status	-0.005
	(0.005)
Days of out-of-school suspension (Year 0)	0.001
	(0.002)
Number of short-term suspensions (Year 0)	0.008
	(0.012)
Attendance rate (Year 0)	0.548***
	(0.074)
Academically and intellectually gifted	0.007
	(0.004)
Student with a disability status	0.003
	(0.010)
Limited English proficiency	0.013*
	(0.005)
Male	0.006
	(0.004)
Asian-Pacific Islander	0.022
	(0.021)
Black	0.018
	(0.022)
Hispanic	0.020
	(0.023)
American Indian	0.050
	(0.035)
Multiracial	0.026
	(0.023)
Number of core course failures (Year 0)	-0.000
	(0.002)
Grade point average (Year 0)	0.014**
	(0.004)
10th grade (dummy)	-0.018***
	(0.004)
Average number of students (squared)	-0.000*
	(0.000)
% economically disadvantaged (squared)	-0.000
	(0.000)
School performance score (squared)	0.000*
	(0.000)
Constant	0.362***
	(0.072)
Observations	6,788
R-squared	0.201

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table P2. *Analytic Sample 4 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.188	.176	.013
Observations		6821

Table P3. *Analytic Sample 4 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS for 2 years	0.058	0.024
	(0.078)	(0.021)
Economically disadvantaged status	0.041	0.013
	(0.069)	(0.014)
Days of out-of-school suspension (Year 0)	0.034	0.014
	(0.053)	(0.011)
Number of short-term suspensions (Year 0)	0.577*	0.146
	(0.268)	(0.071)
Attendance rate (Year 0)	0.937	0.221
	(1.079)	(0.224)
Academically and intellectually gifted	-0.065	-0.026
	(0.092)	(0.025)
Student with a disability status	-0.252*	-0.049
	(0.113)	(0.031)
Limited English proficiency	-0.152	-0.048
	(0.127)	(0.030)
Male	0.237	0.039
	(0.122)	(0.023)
Asian-Pacific Islander	0.201*	0.055**
	(0.072)	(0.018)
Black	-0.016	0.004
	(0.071)	(0.021)
Hispanic	0.170	0.036
	(0.139)	(0.030)
American Indian	-0.091	0.168
	(0.364)	(0.155)
Multiracial	0.063	0.060
	(0.063)	(0.049)
Number of core course failures (Year 0)	0.101	0.036
	(0.105)	(0.033)
Grade point average (Year 0)	-0.136	-0.036
	(0.082)	(0.024)

10th grade (dummy)	-0.201	-0.043
	(0.101)	(0.022)
Average number of students (squared)	0.000	0.000
	(0.000)	(0.000)
% economically disadvantaged (squared)	0.000	0.000
	(0.000)	(0.000)
School performance score (squared)	-0.000	-0.000
	(0.000)	(0.000)
Constant	-0.378	-0.119
	(1.355)	(0.285)
Observations	6,821	6,821
R-squared	0.077	0.111

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table P4. *Analytic Sample 4 - Results for the Effect of CIS on Grade Point Average & Math 3 End of Course Test.*

Variables	Unweighted GPA	Weighted GPA	Math 3
Served by CIS for 2 years	-0.023	0.022	0.138
	(0.020)	(0.029)	(0.114)
Economically disadvantaged status	-0.040	-0.071*	0.008
	(0.026)	(0.030)	(0.057)
Days of out-of-school suspension (Year 0)	0.021**	0.017	0.100**
	(0.006)	(0.009)	(0.030)
Number of short-term suspensions (Year 0)	-0.048	-0.018	-0.463*
	(0.025)	(0.038)	(0.195)
Attendance rate (Year 0)	0.228	0.419	-1.706
	(0.131)	(0.238)	(0.900)
Academically and intellectually gifted	0.080**	0.203***	0.172*
	(0.026)	(0.054)	(0.081)
Student with a disability status	-0.126**	-0.177***	-0.180
	(0.035)	(0.043)	(0.125)
Limited English proficiency	-0.084*	-0.174***	-0.228*
	(0.036)	(0.045)	(0.108)
Male	-0.030	-0.035	0.131
	(0.032)	(0.036)	(0.084)
Asian-Pacific Islander	-0.026	-0.103*	0.040
	(0.055)	(0.041)	(0.221)
Black	-0.036	-0.062	0.348
	(0.066)	(0.046)	(0.287)
Hispanic	-0.007	-0.008	0.251
	(0.069)	(0.040)	(0.339)
American Indian	-0.035	-0.031	0.152

	(0.094)	(0.108)	(0.312)
Multiracial	-0.018	-0.046	0.289
	(0.099)	(0.091)	(0.267)
Number of core course failures (Year 0)	0.062*	0.094**	0.120*
	(0.024)	(0.028)	(0.056)
Grade point average (Year 0)	0.807***	0.951***	0.689***
	(0.023)	(0.027)	(0.070)
10th grade (dummy)	0.230**	0.288***	0.499**
	(0.061)	(0.060)	(0.141)
Average number of students (squared)	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
School performance score (squared)	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Constant	0.216	-0.181	-0.756
	(0.175)	(0.278)	(0.949)
Observations	3,079	3,079	2,025
R-squared	0.825	0.832	0.276

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table P5. *Analytic Sample 4 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.007	.004	.003
Observations	6239	

Appendix Q: Regression Outputs—Analytic Sample 5

Table Q1. *Analytic Sample 5 - Results for the Effect of CIS on Attendance*.

Variables	Attendance Rate
Served by CIS 1 year (2018)	-0.003
	(0.005)
Economically disadvantaged status	-0.002
	(0.006)
Days of out-of-school suspension (Year 0)	-0.002
	(0.001)
Number of short-term suspensions (Year 0)	-0.007
	(0.007)
Attendance rate (Year 0)	0.807***
	(0.071)
Academically and intellectually gifted	-0.012
	(0.006)
Student with a disability status	-0.002
	(0.010)
Limited English proficiency	-0.033**
	(0.008)
Male	-0.004
	(0.005)
Asian-Pacific Islander	0.017
	(0.015)
Black	0.002
	(0.012)
Hispanic	-0.006
	(0.013)
American Indian	0.019
	(0.018)
Multiracial	-0.006
	(0.021)
Standardized ELA test score (Year 0)	0.009
	(0.006)
Standardized Math test score (Year 0)	0.005
	(0.004)
School 2	0.023***
	(0.003)
School 3	0.041***
	(0.003)
School 4	0.024***
	(0.003)
School 5	0.033***
	(0.002)
School 6	0.011
	(0.015)
School 7	-0.002
	(0.004)

School 8	0.037***
	(0.004)
School 9	0.054***
	(0.004)
School 10	0.037***
	(0.002)
School 11	0.008*
	(0.004)
School 12	0.020***
	(0.002)
School 13	-0.002
	(0.003)
Constant	0.152*
	(0.063)
Observations	3,936
R-squared	0.372

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table Q2. *Analytic Sample 5 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.272	.252	.020
Observations	3947	

Table Q3. *Analytic Sample 5 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.605	0.349*
	(0.712)	(0.141)
Economically disadvantaged status	0.672	-0.013
	(0.519)	(0.107)
Days of out-of-school suspension (Year 0)	0.068	0.004
	(0.143)	(0.031)
Number of short-term suspensions (Year 0)	2.048*	0.559**
	(0.759)	(0.170)
Attendance rate (Year 0)	-6.554	-2.808
	(10.501)	(2.282)
Academically and intellectually gifted	0.109	-0.015
	(0.400)	(0.109)
Student with a disability status	-0.489	-0.126

	(0.433)	(0.058)
Limited English proficiency	-0.761	-0.012
	(0.706)	(0.109)
Male	0.173	0.179
	(0.508)	(0.160)
Asian-Pacific Islander	-0.373	-0.178
	(1.050)	(0.303)
Black	0.546	0.030
	(0.893)	(0.297)
Hispanic	-0.629	-0.081
	(1.131)	(0.330)
American Indian	-0.815	-0.448
	(3.451)	(0.862)
Multiracial	-0.713	-0.003
	(0.804)	(0.282)
Standardized ELA test score (Year 0)	0.316	-0.114*
	(0.449)	(0.046)
Standardized Math test score (Year 0)	-0.555	0.015
	(0.511)	(0.040)
School 2	0.957**	0.488***
	(0.284)	(0.106)
School 3	4.169***	0.233**
	(0.363)	(0.065)
School 4	2.246***	0.344***
	(0.307)	(0.058)
School 5	1.071***	0.294**
	(0.222)	(0.084)
School 6	14.074***	2.979***
	(1.360)	(0.334)
School 7	0.362	0.276***
	(0.415)	(0.053)
School 8	0.267	0.233
	(0.338)	(0.127)
School 9	2.005***	0.749***
	(0.309)	(0.062)
School 10	0.971***	0.243*
	(0.207)	(0.090)
School 11	2.862***	1.185***
	(0.409)	(0.060)
School 12	0.832*	0.355***
	(0.333)	(0.072)
School 13	0.012	0.142
	(0.303)	(0.071)
Constant	4.877	2.260
	(9.207)	(1.843)
Observations	3,947	3,947
R-squared	0.182	0.387

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table Q5. *Analytic Sample 5 - Results for the Effect of CIS on Math 1 End of Course Tests.*

Variables	Math 1
Served by CIS 1 year (2018)	0.047
	(0.042)
Economically disadvantaged status	-0.017
	(0.018)
Days of out-of-school suspension (Year 0)	0.005
	(0.010)
Number of short-term suspensions (Year 0)	-0.020
	(0.026)
Attendance rate (Year 0)	1.056
	(0.584)
Academically and intellectually gifted	0.096
	(0.104)
Student with a disability status	-0.013
	(0.047)
Limited English proficiency	-0.134
	(0.084)
Male	-0.061*
	(0.025)
Asian-Pacific Islander	0.117
	(0.098)
Black	0.019
	(0.060)
Hispanic	0.100
	(0.053)
American Indian	-0.067
	(0.189)
Multiracial	-0.213
	(0.104)
Standardized ELA test score (Year 0)	0.160***
	(0.029)
Standardized Math test score (Year 0)	0.677***
	(0.034)
School 2	0.001
	(0.022)
School 3	0.358***
	(0.012)
School 4	-0.080***
	(0.012)
School 5	0.185***
	(0.014)
School 7	0.011
	(0.030)
School 8	-0.206***
	(0.024)
School 9	-0.398***
	(0.017)

School 10	0.112***
	(0.020)
School 11	-0.021
	(0.018)
School 12	-0.038**
	(0.012)
School 6	-1.053***
	(0.053)
School 13	0.048*
	(0.017)
Constant	-1.099
	(0.587)
Observations	3,394
R-squared	0.668

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table Q6. *Analytic Sample 5 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.025	.017	.007
Observations	3611	

Appendix R: Regression Outputs—Analytic Sample 6

Table R1. *Analytic Sample 6 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	-0.001
	(0.006)
Economically disadvantaged status	-0.005
	(0.005)
Days of out-of-school suspension (Year 0)	-0.003**
	(0.001)
Number of short-term suspensions (Year 0)	-0.003
	(0.004)
Attendance rate (Year 0)	0.861***
	(0.081)
Academically and intellectually gifted	-0.010
	(0.008)
Student with a disability status	-0.003
	(0.009)
Limited English proficiency	-0.035***
	(0.009)
Male	-0.007
	(0.007)
Asian-Pacific Islander	0.030*
	(0.013)
Black	0.004
	(0.009)
Hispanic	0.009
	(0.009)
American Indian	-0.011
	(0.038)
Multiracial	0.030*
	(0.013)
Standardized ELA test score (Year 0)	0.011*
	(0.005)
Standardized Math test score (Year 0)	0.002
	(0.003)
Average number of students (squared)	-0.000*
	(0.000)
% economically disadvantaged (squared)	0.000
	(0.000)
School performance score (squared)	0.000**
	(0.000)
Constant	0.099
	(0.076)
Observations	4,353
R-squared	0.397

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table R2. *Analytic Sample 6 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.268	.276	-.008
Observations	4361	

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Table R3. *Analytic Sample 6 - Results for the Effect of CIS on Behavior*.

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.431	0.362*
	(0.861)	(0.162)
Economically disadvantaged status	0.509	-0.046
	(0.414)	(0.110)
Days of out-of-school suspension (Year 0)	0.039	0.003
	(0.180)	(0.028)
Number of short-term suspensions (Year 0)	1.501	0.558***
	(0.814)	(0.136)
Attendance rate (Year 0)	-33.153*	-5.613**
	(13.026)	(1.748)
Academically and intellectually gifted	1.201	0.094
	(1.370)	(0.123)
Student with a disability status	-1.915	-0.360
	(1.078)	(0.188)
Limited English proficiency	-2.120	-0.420*
	(1.050)	(0.198)
Male	-0.920	0.063
	(1.132)	(0.205)
Asian-Pacific Islander	0.357	0.158
	(0.951)	(0.203)
Black	0.752	0.233
	(0.876)	(0.180)
Hispanic	-0.852	-0.008
	(1.069)	(0.159)
American Indian	-2.449	-0.825
	(3.735)	(0.835)
Multiracial	-2.819	-0.339
	(2.096)	(0.360)
Standardized ELA test score (Year 0)	-1.513*	-0.353**
	(0.643)	(0.100)
Standardized Math test score (Year 0)	-0.142	0.109
	(0.840)	(0.128)
Average number of students (squared)	-0.000	-0.000

	(0.000)	(0.000)
% economically disadvantaged (squared)	0.001	0.000
	(0.000)	(0.000)
School performance score (squared)	0.000	-0.000
	(0.000)	(0.000)
Constant	31.334*	5.319***
	(12.412)	(1.309)
Observations	4,361	4,361
R-squared	0.100	0.352

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table R4. *Analytic Sample 6 - Results for the Effect of CIS on Math 1 End of Course Tests.*

Variables	Math 1
Served by CIS 1 year (2018)	0.171***
	(0.042)
Economically disadvantaged status	-0.036*
	(0.017)
Days of out-of-school suspension (Year 0)	-0.001
	(0.013)
Number of short-term suspensions (Year 0)	0.010
	(0.035)
Attendance rate (Year 0)	0.825
	(0.524)
Academically and intellectually gifted	0.138
	(0.082)
Student with a disability status	-0.031
	(0.046)
Limited English proficiency	-0.029
	(0.070)
Male	-0.013
	(0.026)
Asian-Pacific Islander	0.197
	(0.116)
Black	0.048
	(0.062)
Hispanic	0.119
	(0.066)
American Indian	-0.265**
	(0.096)
Multiracial	-0.112
	(0.138)
Standardized ELA test score (Year 0)	0.147***
	(0.025)
Standardized Math test score (Year 0)	0.655***
	(0.029)

Average number of students (squared)	0.000
	(0.000)
% economically disadvantaged (squared)	0.000
	(0.000)
School performance score (squared)	0.000
	(0.000)
Constant	-1.310*
	(0.537)
Observations	4,031
R-squared	0.666

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table R5. *Analytic Sample 6 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.023	.010	.013
Observations	3698	

Appendix S: Regression Outputs—Analytic Sample 7

Table S1. *Analytic Sample 7 - Results for the Effect of CIS on Attendance*.

Variables	Attendance Rate
Served by CIS 1 year (2018)	0.005
	(0.004)
Economically disadvantaged status	-0.010*
	(0.004)
Days of out-of-school suspension (Year 0)	0.002
	(0.001)
Number of short-term suspensions (Year 0)	-0.009*
	(0.004)
Attendance rate (Year 0)	0.760***
	(0.065)
Academically and intellectually gifted	-0.015
	(0.016)
Student with a disability status	0.001
	(0.009)
Limited English proficiency	0.003
	(0.003)
Male	0.006
	(0.004)
Asian-Pacific Islander	0.019
	(0.009)
Black	0.021
	(0.011)
Hispanic	0.009
	(0.009)
American Indian	0.045
	(0.023)
Multiracial	0.018
	(0.009)
Number of core course failures (Year 0)	-0.009**
	(0.003)
Grade point average (Year 0)	0.013***
	(0.002)
10th grade (dummy)	-0.014**
	(0.004)
11th grade (dummy)	-0.025***
	(0.004)
School 2	0.026***
	(0.002)
School 3	0.026***
	(0.002)
School 4	0.009***
	(0.002)
School 5	0.027***
	(0.003)

School 6	-0.004
	(0.017)
School 7	0.006*
	(0.003)
School 8	0.032***
	(0.002)
School 9	0.015***
	(0.003)
School 10	0.021***
	(0.003)
School 11	-0.004
	(0.003)
School 12	0.022***
	(0.001)
School 13	-0.017***
	(0.002)
Constant	0.151*
	(0.060)
Observations	12,127
R-squared	0.407

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table S2. *Analytic Sample 7 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.304	.307	-.004
Observations	12193	

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Table S3. *Analytic Sample 7 - Results for the Effect of CIS on Behavior*.

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.046	0.018
	(0.068)	(0.023)
Economically disadvantaged status	0.092	0.041
	(0.090)	(0.023)
Days of out-of-school suspension (Year 0)	-0.094	-0.031
	(0.047)	(0.025)
Number of short-term suspensions (Year 0)	1.856***	0.546***
	(0.259)	(0.092)
Attendance rate (Year 0)	-1.736	-0.018
	(1.276)	(0.194)
Academically and intellectually gifted	0.344	0.034
	(0.257)	(0.032)
Student with a disability status	0.109	0.104
	(0.377)	(0.137)
Limited English proficiency	-0.391*	-0.088*
	(0.154)	(0.033)
Male	0.107	0.027
	(0.139)	(0.024)
Asian-Pacific Islander	0.430	0.077
	(0.376)	(0.074)
Black	0.266*	0.028
	(0.110)	(0.035)
Hispanic	-0.016	-0.024
	(0.119)	(0.023)
American Indian	-0.429	-0.096
	(0.276)	(0.119)
Multiracial	0.884	0.162
	(0.878)	(0.166)
Number of core course failures (Year 0)	-0.012	0.027
	(0.109)	(0.035)
Grade Point Average (Year 0)	-0.268	-0.056
	(0.142)	(0.037)
10th grade (dummy)	-0.084	-0.030
	(0.101)	(0.030)
11th grade (dummy)	-0.331*	-0.064*
	(0.115)	(0.027)
School 2	0.795***	0.168***
	(0.109)	(0.026)
School 3	0.527***	0.109**
	(0.114)	(0.032)
School 4	0.594***	0.071*
	(0.091)	(0.029)
School 5	0.418**	0.121**
	(0.111)	(0.029)
School 6	5.414***	0.577**
	(0.568)	(0.154)

School 7	0.607***	0.093**
	(0.095)	(0.027)
School 8	0.068	0.016
	(0.079)	(0.015)
School 9	1.328***	0.212***
	(0.129)	(0.026)
School 10	0.392**	0.060*
	(0.107)	(0.020)
School 11	0.643***	0.277***
	(0.130)	(0.035)
School 12	0.252*	0.038
	(0.103)	(0.026)
School 13	0.246**	0.086***
	(0.072)	(0.018)
Constant	2.139	0.119
	(1.232)	(0.143)
Observations	12,193	12,193
R-squared	0.287	0.341

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table S4. *Analytic Sample 7 - Results for the Effect of CIS on Grade Point Average and Biology & English 2 End of Course Tests.*

Variables	Unweighted GPA	Weighted GPA	Biology	English 2
Served by CIS 1 year (2018)	0.040	0.126	-0.048	-0.116*
	(0.027)	(0.066)	(0.080)	(0.053)
Economically disadvantaged status	-0.058**	-0.131***	0.024	0.046
	(0.020)	(0.034)	(0.058)	(0.055)
Days of out-of-School suspension (Year 0)	0.010	0.008	-0.050**	-0.012
	(0.008)	(0.011)	(0.016)	(0.012)
Number of short-term suspensions (Year 0)	-0.072*	-0.078	0.157*	0.061
	(0.033)	(0.050)	(0.075)	(0.065)
Attendance rate (Year 0)	0.363	0.751	-0.171	-0.591*
	(0.280)	(0.429)	(0.424)	(0.230)
Academically and intellectually gifted	0.219***	0.484***	0.630**	0.418*
	(0.031)	(0.075)	(0.194)	(0.203)
Student with a disability status	-0.135**	-0.280***	-0.583***	-0.605***
	(0.043)	(0.065)	(0.093)	(0.056)
Limited English proficiency	-0.178**	-0.332***	-0.618***	-0.603***
	(0.056)	(0.048)	(0.120)	(0.103)
Male	-0.076***	-0.127***	0.240**	-0.081
	(0.017)	(0.027)	(0.085)	(0.043)
Asian-Pacific Islander	0.081*	0.149*	0.360	-0.313*
	(0.039)	(0.064)	(0.191)	(0.138)
Black	-0.107**	-0.217***	-0.053	-0.310**
	(0.035)	(0.057)	(0.108)	(0.091)

Hispanic	-0.068*	-0.157***	-0.064	-0.216*
	(0.027)	(0.040)	(0.091)	(0.099)
American Indian	0.008	0.009	-0.145	-0.383
	(0.186)	(0.317)	(0.233)	(0.198)
Multiracial	-0.097	-0.185	0.220	0.214
	(0.055)	(0.105)	(0.117)	(0.173)
Number of core course failures (Year 0)	0.066***	0.088***	0.040	0.013
	(0.010)	(0.017)	(0.036)	(0.019)
Grade point average (Year 0)	0.764***	0.899***	0.557***	0.539***
	(0.017)	(0.035)	(0.038)	(0.033)
10th grade (dummy)	-0.227	-0.283	0.569***	0.566***
	(0.160)	(0.182)	(0.077)	(0.105)
11th grade (dummy)	-0.059	0.031	1.017***	0.172
	(0.168)	(0.195)	(0.106)	(0.126)
Average number of students (squared)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
School performance score (squared)	0.000	0.000	0.000*	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.387	-0.001	-1.683**	-1.170**
	(0.287)	(0.448)	(0.465)	(0.333)
Observations	4,225	4,225	3,530	4,466
R-squared	0.801	0.720	0.406	0.500

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table S5. *Analytic Sample 7 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.031	.029	.003
Observations	11231	

Appendix T: Regression Outputs—Analytic Sample 8

Table T1. *Analytic Sample 8 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	-0.004
	(0.006)
Economically disadvantaged status	-0.007*
	(0.003)
Days of out-of-School suspension (Year 0)	0.001
	(0.001)
Number of short-term suspensions (Year 0)	-0.004
	(0.005)
Attendance rate (Year 0)	0.713***
	(0.063)
Academically and intellectually gifted	-0.005
	(0.013)
Student with a disability status	-0.011
	(0.010)
Limited English proficiency	0.009
	(0.006)
Male	0.005
	(0.003)
Asian-Pacific Islander	0.015
	(0.008)
Black	0.022**
	(0.008)
Hispanic	0.012
	(0.006)
American Indian	0.044*
	(0.018)
Multiracial	0.016
	(0.012)
Number of core course failures (Year 0)	-0.008**
	(0.003)
Grade point average (Year 0)	0.014***
	(0.002)
10th grade (dummy)	-0.011*
	(0.004)
11th grade (dummy)	-0.021***
	(0.004)
Average number of students (squared)	-0.000
	(0.000)
% Economically disadvantaged (squared)	0.000
	(0.000)
School performance s core (squared)	0.000
	(0.000)
	0.196**

Constant	
	(0.064)
Observations	14,125
R-squared	0.398

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table T2. *Analytic Sample 8 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.293	.280	.013
Observations	14182	

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Table T3. *Analytic Sample 8 - Results for the Effect of CIS on Behavior*.

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.173*	0.044
	(0.071)	(0.032)
Economically disadvantaged status	0.030	0.024
	(0.097)	(0.024)
Days of out-of-School suspension (Year 0)	0.019	0.008
	(0.057)	(0.019)
Number of short-term suspensions (Year 0)	1.263***	0.340**
	(0.315)	(0.095)
Attendance rate (Year 0)	-1.949	-0.410
	(1.147)	(0.292)
Academically and intellectually gifted	0.114	-0.009
	(0.229)	(0.033)
Student with a disability status	0.209	0.104
	(0.333)	(0.134)
Limited English proficiency	-0.453**	-0.114*
	(0.151)	(0.042)
Male	0.221*	0.060**
	(0.099)	(0.022)
Asian-Pacific Islander	0.488	0.101
	(0.361)	(0.081)
Black	0.274**	0.053
	(0.097)	(0.029)
Hispanic	-0.043	-0.030
	(0.131)	(0.026)

American Indian	0.607	0.152
	(0.776)	(0.222)
Multiracial	1.069	0.182
	(0.874)	(0.168)
Number of core course failures (Year 0)	0.111	0.055
	(0.076)	(0.028)
Grade point average (Year 0)	-0.165	-0.029
	(0.116)	(0.027)
10th grade (dummy)	-0.158	-0.052
	(0.112)	(0.028)
11th grade (dummy)	-0.351**	-0.090**
	(0.117)	(0.027)
Average number of students (squared)	0.000	-0.000
	(0.000)	(0.000)
% economically disadvantaged (squared)	0.000	0.000
	(0.000)	(0.000)
School performance score (squared)	-0.000	0.000
	(0.000)	(0.000)
Constant	2.333*	0.419
	(1.051)	(0.291)
Observations	14,182	14,182
R-squared	0.234	0.273

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table T4. *Analytic Sample 8 - Results for the Effect of CIS on Grade Point Average and Biology & English 2 End of Course Tests.*

Variables	Unweighted GPA	Weighted GPA	Biology	English 2
Served by CIS 1 year (2018)	0.040	0.126	-0.048	-0.116*
	(0.027)	(0.066)	(0.080)	(0.053)
Economically disadvantaged status	-0.058**	-0.131***	0.024	0.046
	(0.020)	(0.034)	(0.058)	(0.055)
Days of out-of-School suspension (Year 0)	0.010	0.008	-0.050**	-0.012
	(0.008)	(0.011)	(0.016)	(0.012)
Number of short-term suspensions (Year 0)	-0.072*	-0.078	0.157*	0.061
	(0.033)	(0.050)	(0.075)	(0.065)
Attendance rate (Year 0)	0.363	0.751	-0.171	-0.591*
	(0.280)	(0.429)	(0.424)	(0.230)
Academically and intellectually gifted	0.219***	0.484***	0.630**	0.418*
	(0.031)	(0.075)	(0.194)	(0.203)
Student with a disability status	-0.135**	-0.280***	-0.583***	-0.605***
	(0.043)	(0.065)	(0.093)	(0.056)
Limited English proficiency	-0.178**	-0.332***	-0.618***	-0.603***
	(0.056)	(0.048)	(0.120)	(0.103)
Male	-0.076***	-0.127***	0.240**	-0.081

	(0.017)	(0.027)	(0.085)	(0.043)
Asian-Pacific Islander	0.081*	0.149*	0.360	-0.313*
	(0.039)	(0.064)	(0.191)	(0.138)
Black	-0.107**	-0.217***	-0.053	-0.310**
	(0.035)	(0.057)	(0.108)	(0.091)
Hispanic	-0.068*	-0.157***	-0.064	-0.216*
	(0.027)	(0.040)	(0.091)	(0.099)
American Indian	0.008	0.009	-0.145	-0.383
	(0.186)	(0.317)	(0.233)	(0.198)
Multiracial	-0.097	-0.185	0.220	0.214
	(0.055)	(0.105)	(0.117)	(0.173)
Number of core course failures (Year 0)	0.066***	0.088***	0.040	0.013
	(0.010)	(0.017)	(0.036)	(0.019)
Grade point average (Year 0)	0.764***	0.899***	0.557***	0.539***
	(0.017)	(0.035)	(0.038)	(0.033)
10th grade (dummy)	-0.227	-0.283	0.569***	0.566***
	(0.160)	(0.182)	(0.077)	(0.105)
11th grade (dummy)	-0.059	0.031	1.017***	0.172
	(0.168)	(0.195)	(0.106)	(0.126)
Average number of students (squared)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
School performance score (squared)	0.000	0.000	0.000*	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.387	-0.001	-1.683**	-1.170**
	(0.287)	(0.448)	(0.465)	(0.333)
Observations	4,225	4,225	3,530	4,466
R-squared	0.801	0.720	0.406	0.500

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table T5. *Analytic Sample 8 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.031	.018	.013
Observations	14127	

Appendix U: Regression Outputs—Analytic Sample 9

Table U1. *Analytic Sample 9 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	0.022**
	(0.005)
Economically disadvantaged status	-0.002
	(0.007)
Days of out-of-School suspension (Year 0)	0.004**
	(0.001)
Number of short-term suspensions (Year 0)	-0.024***
	(0.004)
Attendance rate (Year 0)	0.836***
	(0.068)
Academically and intellectually gifted	0.003
	(0.010)
Student with a disability status	0.019
	(0.014)
Limited English proficiency	0.004
	(0.011)
Male	0.009*
	(0.003)
Asian-Pacific Islander	0.012
	(0.008)
Black	0.001
	(0.011)
Hispanic	-0.014
	(0.009)
American Indian	-0.006
	(0.024)
Multiracial	-0.019
	(0.012)
Standardized ELA test score (Year 0)	-0.001
	(0.009)
Standardized Math test score (Year 0)	0.017**
	(0.005)
School 3	0.019
	(0.010)
School 4	0.006
	(0.005)
School 5	0.002
	(0.002)
School 6	0.021***
	(0.002)
School 7	-0.005
	(0.006)
School 8	0.011*
	(0.005)

School 9	0.005*
	(0.002)
School 10	-0.012
	(0.007)
School 11	0.004
	(0.004)
School 12	0.023**
	(0.007)
Constant	0.129
	(0.073)
Observations	2,583
R-squared	0.366

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table U2. *Analytic Sample 9 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.205	.239	-.035
Observations	2573	

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Table U3. *Analytic Sample 9 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	-0.907**	-0.055
	(0.276)	(0.059)
Economically disadvantaged status	0.618*	0.090
	(0.254)	(0.059)
Days of out-of-School suspension (Year 0)	0.185	0.095
	(0.330)	(0.068)
Number of short-term suspensions (Year 0)	1.219	0.150
	(1.642)	(0.260)
Attendance rate (Year 0)	-3.762	-1.440
	(4.449)	(0.921)
Academically and intellectually gifted	-0.336	0.124
	(0.479)	(0.193)
Student with a disability status	-1.379**	-0.193
	(0.392)	(0.092)
Limited English proficiency	-0.475*	-0.091
	(0.196)	(0.044)

Male	0.733	0.183
	(0.638)	(0.100)
Asian-Pacific Islander	-0.613	-0.103
	(0.574)	(0.121)
Black	0.173	0.038
	(0.318)	(0.054)
Hispanic	-0.487	-0.094
	(0.314)	(0.070)
American Indian	-0.724	-0.091
	(0.936)	(0.180)
Multiracial	-1.353	-0.319
	(0.764)	(0.223)
Standardized ELA test score (Year 0)	-0.080	-0.001
	(0.241)	(0.032)
Standardized Math test score (Year 0)	-0.573**	-0.101**
	(0.176)	(0.024)
School 3	-1.106**	-0.253***
	(0.339)	(0.025)
School 4	-0.262	-0.073
	(0.191)	(0.038)
School 5	-0.568**	-0.141***
	(0.141)	(0.023)
School 6	1.298***	0.142***
	(0.085)	(0.029)
School 7	-0.324	-0.073
	(0.180)	(0.033)
School 8	-0.871	-0.268**
	(0.489)	(0.084)
School 9	-0.067	-0.097***
	(0.039)	(0.015)
School 10	-0.169	0.043
	(0.250)	(0.053)
School 11	-1.115***	-0.309***
	(0.194)	(0.045)
School 12	-1.148**	-0.349**
	(0.330)	(0.099)
Constant	4.492	1.530
	(4.053)	(0.830)
Observations	2,585	2,585
R-squared	0.145	0.410

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table U4. *Analytic Sample 9 - Results for the Effect of CIS on Math 1 End of Course Test*.

Variables	Math 1
Served by CIS 1 year (2018)	0.031
	(0.050)
Economically disadvantaged status	0.067
	(0.045)
Days of out-of-School suspension (Year 0)	0.007
	(0.010)
Number of short-term suspensions (Year 0)	-0.094
	(0.054)
Attendance rate (Year 0)	0.261
	(0.523)
Academically and intellectually gifted	0.405*
	(0.169)
Student with a disability status	-0.321
	(0.190)
Limited English proficiency	0.131*
	(0.058)
Male	-0.066
	(0.072)
Asian-Pacific Islander	0.284
	(0.151)
Black	0.017
	(0.071)
Hispanic	0.175*
	(0.077)
American Indian	0.674*
	(0.271)
Multiracial	0.379
	(0.214)
Standardized ELA test score (Year 0)	0.198***
	(0.035)
Standardized Math test score (Year 0)	0.590***
	(0.040)
School 3	0.609***
	(0.058)
School 4	-0.093**
	(0.021)
School 5	0.447***
	(0.026)
School 6	0.515***
	(0.021)
School 7	-0.202***
	(0.035)
School 8	-0.297***
	(0.050)
School 9	0.348***
	(0.016)

School 10	0.107**
	(0.025)
School 11	0.305***
	(0.013)
School 12	0.268***
	(0.026)
Constant	-0.576
	(0.516)
Observations	2,200
R-squared	0.622

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table U5. *Analytic Sample 9 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.012	.013	-.001
Observations	2359	

Appendix V: Regression Outputs—Analytic Sample 10

Table V1. *Analytic Sample 10 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	-0.011
	(0.006)
Economically disadvantaged status	0.007
	(0.008)
Days of out-of-School suspension (Year 0)	0.005*
	(0.002)
Number of short-term suspensions (Year 0)	-0.017
	(0.010)
Attendance rate (Year 0)	0.801***
	(0.133)
Academically and intellectually gifted	0.004
	(0.014)
Student with a disability status	0.009
	(0.013)
Limited English proficiency	0.020
	(0.010)
Male	0.002
	(0.004)
Asian-Pacific Islander	-0.011
	(0.010)
Black	-0.002
	(0.008)
Hispanic	-0.013
	(0.009)
American Indian	-0.225***
	(0.018)
Multiracial	-0.025
	(0.013)
Standardized ELA test score (Year 0)	-0.001
	(0.005)
Standardized math test score (Year 0)	0.014*
	(0.006)
Average number of students (squared)	-0.000
	(0.000)
% economically disadvantaged (squared)	-0.000*
	(0.000)
School performance score (squared)	0.000
	(0.000)
Constant	0.208
	(0.128)
Observations	1,880
R-squared	0.440

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table V2. *Analytic Sample 10 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.216	.137	.079
Observations	1881	

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Table V3. *Analytic Sample 10 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	-0.262	0.121
	(0.271)	(0.061)
Economically disadvantaged status	-0.293	-0.106
	(0.246)	(0.073)
Days of out-of-School suspension (Year 0)	0.165	0.120
	(0.332)	(0.059)
Number of short-term suspensions (Year 0)	1.036	-0.076
	(1.393)	(0.176)
Attendance rate (Year 0)	-4.081	-1.508*
	(2.242)	(0.690)
Academically and intellectually gifted	1.253*	0.616*
	(0.579)	(0.279)
Student with a disability status	0.167	-0.238
	(1.471)	(0.223)
Limited English proficiency	-0.888*	-0.167*
	(0.380)	(0.072)
Male	1.108*	0.210*
	(0.414)	(0.087)
Asian-Pacific Islander	0.261	-0.158
	(0.635)	(0.143)
Black	-0.149	-0.144
	(0.448)	(0.100)
Hispanic	-0.478	-0.229
	(0.618)	(0.151)
American Indian	18.989***	5.389***
	(1.427)	(0.342)
Multiracial	-1.413	-0.454
	(1.492)	(0.395)
Standardized ELA test score (Year 0)	-0.541	-0.132
	(0.278)	(0.077)
Standardized math test score (Year 0)	-0.565**	-0.121*
	(0.171)	(0.043)
Average number of students (squared)	0.000	0.000
	(0.000)	(0.000)

% economically disadvantaged (squared)	0.001***	0.000*
	(0.000)	(0.000)
School performance score (squared)	0.000	-0.000
	(0.000)	(0.000)
Constant	2.292	1.453*
	(2.316)	(0.687)
Observations	1,881	1,881
R-squared	0.100	0.320

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table V4. *Analytic Sample 10 - Results for the Effect of CIS on Math End of Course Tests*.

Variables	Math 1
Served by CIS 1 year (2019)	0.083
	(0.058)
Economically disadvantaged status	0.055
	(0.107)
Number of out-of-school suspensions (Year 0)	-0.001
	(0.025)
Number of short-term suspensions (Year 0)	-0.044
	(0.107)
Attendance rate (Year 0)	0.784
	(0.682)
Academically and intellectually gifted	0.468
	(0.292)
Student with a disability status	-0.144
	(0.113)
Limited English proficiency	0.239*
	(0.110)
Male	-0.026
	(0.066)
Asian-Pacific Islander	0.506*
	(0.224)
Black	0.218
	(0.112)
Hispanic	0.249
	(0.133)
Multiracial	0.655**
	(0.220)
Standardized ELA test score (Year 0)	0.173**
	(0.045)
Standardized Math test score (Year 0)	0.580***
	(0.039)
Average number of students (squared)	0.000
	(0.000)
% economically disadvantaged (squared)	-0.000**
	(0.000)

School performance score (squared)	-0.000
	(0.000)
American Indian	-0.150
	(0.154)
Constant	-0.877
	(0.604)
Observations	1,763
R-squared	0.663

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Appendix W: Regression Outputs—Analytic Sample 11

Table W1. *Analytic Sample 11- Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	0.006*
	(0.002)
Economically disadvantaged status	-0.004*
	(0.002)
Days of out-of-School suspension (Year 0)	0.004*
	(0.001)
Number of short-term suspensions (Year 0)	-0.020***
	(0.004)
Attendance rate (Year 0)	0.906***
	(0.037)
Academically and intellectually gifted	-0.005
	(0.003)
Student with a disability status	-0.001
	(0.004)
Limited English proficiency	0.000
	(0.002)
Male	0.004*
	(0.002)
Asian-Pacific Islander	0.006
	(0.004)
Black	0.006
	(0.003)
Hispanic	0.000
	(0.004)
American Indian	0.001
	(0.008)
Multiracial	-0.011
	(0.010)
Number of core course failures (Year 0)	-0.002
	(0.003)
Grade point average (Year 0)	0.008**
	(0.002)
10th grade (dummy)	-0.003
	(0.002)
11th grade (dummy)	-0.014**
	(0.003)
School 2	0.003*
	(0.001)
School 3	-0.019***
	(0.001)
School 4	-0.005*
	(0.002)
School 5	-0.005***
	(0.001)

School 6	0.002
	(0.001)
School 7	0.003*
	(0.001)
School 8	-0.039***
	(0.004)
School 9	-0.004**
	(0.001)
School 10	-0.028***
	(0.001)
School 11	-0.016***
	(0.001)
School 12	0.001
	(0.001)
Constant	0.055
	(0.035)
Observations	11,476
R-squared	0.436

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table W2. *Analytic Sample 11 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.170	.171	-.001
Observations	11520	

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Table W3. *Analytic Sample 11 - Results for the Effect of CIS on Behavior*.

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.071	0.011
	(0.072)	(0.010)
Economically disadvantaged status	-0.002	-0.003
	(0.056)	(0.013)
Days of out-of-School suspension (Year 0)	0.132	-0.001
	(0.159)	(0.017)
Number of short-term suspensions (Year 0)	1.283**	0.382***
	(0.404)	(0.072)
Attendance rate (Year 0)	2.067	0.247
	(1.900)	(0.239)
Academically and intellectually gifted	0.004	-0.008
	(0.035)	(0.009)
Student with a disability status	0.063	0.071
	(0.281)	(0.104)
Limited English proficiency	-0.141	-0.028
	(0.086)	(0.024)
Male	0.053	0.016
	(0.091)	(0.021)
Asian-Pacific Islander	-0.104	-0.035
	(0.093)	(0.025)
Black	0.059	0.003
	(0.095)	(0.025)
Hispanic	-0.180	-0.058*
	(0.083)	(0.024)
American Indian	0.138	0.055
	(0.234)	(0.102)
Multiracial	-0.130	-0.048
	(0.077)	(0.025)
Number of core course failures (Year 0)	0.184	0.041
	(0.144)	(0.019)
Grade point average (Year 0)	-0.195	-0.058*
	(0.101)	(0.019)
10th grade (dummy)	-0.061	-0.035*
	(0.077)	(0.013)
11th grade (dummy)	-0.276***	-0.084***
	(0.060)	(0.017)
School 2	0.149	0.070**
	(0.076)	(0.016)
School 3	0.611***	0.161***
	(0.085)	(0.022)
School 4	0.570***	0.105***
	(0.099)	(0.023)
School 5	0.316**	0.092***
	(0.076)	(0.018)
School 6	0.397***	0.105***
	(0.057)	(0.015)

School 7	0.153*	0.061***
	(0.058)	(0.014)
School 8	0.270	-0.011
	(0.220)	(0.019)
School 9	0.175*	0.029
	(0.077)	(0.019)
School 10	0.237	0.116**
	(0.130)	(0.029)
School 11	0.734***	0.069*
	(0.095)	(0.022)
School 12	0.364**	0.052*
	(0.094)	(0.021)
Constant	-1.502	-0.053
	(1.728)	(0.217)
Observations	11,520	11,520
R-squared	0.296	0.300

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table W4. *Analytic Sample 11 - Results for the Effect of CIS on Grade Point Average and Biology, English 2, & Math End of Course Tests.*

Variables	Unweighted GPA	Weighted GPA	Biology	English 2	Math 3
Served by CIS 1 year (2018)	0.015	0.006	-0.000	0.005	0.033
	(0.017)	(0.025)	(0.069)	(0.029)	(0.044)
Economically disadvantaged status	-0.061**	-0.095**	-0.045	-0.076	0.019
	(0.019)	(0.030)	(0.058)	(0.057)	(0.044)
Days of out-of-School suspension (Year 0)	-0.005	-0.012	-0.016	-0.031	0.016
	(0.011)	(0.010)	(0.019)	(0.031)	(0.011)
Number of short-term suspensions (Year 0)	-0.014	-0.004	0.000	-0.015	-0.062
	(0.033)	(0.029)	(0.063)	(0.081)	(0.057)
Attendance rate (Year 0)	0.903*	1.068*	-0.910	-1.588*	-0.176
	(0.325)	(0.366)	(0.724)	(0.610)	(0.670)
Academically and intellectually gifted	0.101*	0.207**	0.645***	0.368***	0.333**
	(0.044)	(0.050)	(0.061)	(0.061)	(0.101)
Student with a disability status	-0.095	-0.173*	-0.133	-0.373***	-0.203
	(0.054)	(0.077)	(0.071)	(0.026)	(0.132)
Limited English proficiency	-0.085	-0.174**	-0.499**	-0.604***	-0.343**
	(0.044)	(0.050)	(0.133)	(0.071)	(0.109)
Male	-0.087**	-0.090**	0.113	-0.062	0.103
	(0.021)	(0.023)	(0.065)	(0.065)	(0.053)
Asian-Pacific Islander	0.029	0.054	-0.163	-0.116	0.043
	(0.061)	(0.088)	(0.077)	(0.133)	(0.075)
Black	-0.132	-0.199*	-0.191	-0.079	-0.098

	(0.066)	(0.074)	(0.121)	(0.069)	(0.086)
Hispanic	-0.089	-0.110	-0.106	0.007	0.072
	(0.046)	(0.065)	(0.124)	(0.059)	(0.074)
American Indian	-0.475**	-0.630**	-0.246	0.158	-0.124
	(0.146)	(0.193)	(0.212)	(0.110)	(0.120)
Multiracial	-0.107	-0.086	-0.479**	-0.085	-0.115
	(0.058)	(0.091)	(0.132)	(0.160)	(0.093)
Number of core course failures (Year 0)	0.106***	0.136***	0.117**	0.089**	0.121**
	(0.022)	(0.025)	(0.037)	(0.025)	(0.027)
Grade point average (Year 0)	0.771***	0.884***	0.784***	0.708***	0.739***
	(0.022)	(0.027)	(0.056)	(0.027)	(0.054)
10th grade (dummy)	-0.068	-0.049	0.415***	0.186	0.632***
	(0.055)	(0.069)	(0.070)	(0.294)	(0.064)
11th grade (dummy)	0.050	0.086	0.639***	-0.436	0.908***
	(0.060)	(0.069)	(0.132)	(0.467)	(0.116)
School 2	0.053***	0.281***	-0.936***	0.673***	-0.000
	(0.010)	(0.012)	(0.075)	(0.029)	(0.048)
School 3	-0.056**	-0.000	-0.976***	0.229***	-0.327***
	(0.015)	(0.021)	(0.086)	(0.032)	(0.047)
School 4	-0.139***	-0.120**	-0.851***	0.209***	-0.622***
	(0.024)	(0.031)	(0.069)	(0.030)	(0.036)
School 5	0.019	0.081**	-0.638***	0.439***	0.195***
	(0.016)	(0.020)	(0.059)	(0.026)	(0.035)
School 6	-0.005	0.128**	-0.879***	0.634***	-0.452***
	(0.026)	(0.034)	(0.074)	(0.033)	(0.026)
School 7	0.136***	0.395***	-0.419**	0.570***	0.049
	(0.020)	(0.027)	(0.096)	(0.019)	(0.045)
School 8	-0.210**	-0.132*	-0.774***	0.362***	-1.168***
	(0.049)	(0.052)	(0.120)	(0.059)	(0.060)
School 9	0.025	0.164***	-0.506***	0.645***	0.036
	(0.017)	(0.022)	(0.061)	(0.031)	(0.034)
School 10	-0.096***	0.021	-0.599***	0.439***	-0.241***
	(0.021)	(0.026)	(0.090)	(0.061)	(0.038)
School 11	-0.055**	-0.007	-0.394***	0.232***	-0.371***
	(0.015)	(0.019)	(0.072)	(0.040)	(0.030)
School 12	-0.134***	-0.106**	-1.014***	0.157***	-0.274***
	(0.023)	(0.028)	(0.089)	(0.029)	(0.035)
Constant	-0.130	-0.452	-0.410	-0.813	-2.189**
	(0.371)	(0.418)	(0.617)	(0.581)	(0.702)
Observations	2,796	2,796	3,011	3,894	3,658
R-squared	0.857	0.846	0.535	0.587	0.413

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table W5. *Analytic Sample 11 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.006	.017	-.011
Observations	11520	

Appendix X: Regression Outputs—Analytic Sample 12

Table X1. *Analytic Sample 12 - Results for the Effect of CIS on Attendance Rate.*

Variables	Attendance Rate
Served by CIS 1 year (2018)	-0.005
	(0.005)
Economically disadvantaged status	-0.004
	(0.002)
Days of out-of-School suspension (Year 0)	0.001
	(0.002)
Number of short-term suspensions (Year 0)	-0.015*
	(0.006)
Attendance rate (Year 0)	0.772***
	(0.044)
Academically and intellectually gifted	-0.002
	(0.004)
Student with a disability status	-0.002
	(0.006)
Limited English proficiency	0.000
	(0.004)
Male	0.004*
	(0.002)
Asian-Pacific Islander	0.005
	(0.004)
Black	0.007
	(0.004)
Hispanic	0.005
	(0.005)
American Indian	-0.001
	(0.008)
Multiracial	-0.008
	(0.011)
Number of core course failures (Year 0)	-0.002
	(0.003)
Grade point average (Year 0)	0.008**
	(0.002)
10th grade (dummy)	0.001
	(0.003)
11th grade (dummy)	-0.013**
	(0.004)
Average number of students (squared)	-0.000
	(0.000)
% economically disadvantaged (squared)	-0.000
	(0.000)
School performance score (squared)	0.000
	(0.000)
Constant	0.189***

	(0.041)
Observations	12,620
R-squared	0.449

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table X2. *Analytic Sample 12 - Results for the Effect of CIS on Chronic Absenteeism.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.158	.132	.027
Observations	12630	

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Table X3. *Analytic Sample 12 - Results for the Effect of CIS on Behavior.*

Variables	Number of Out-of-School Suspensions	Number of Short-term Suspension
Served by CIS 1 year (2018)	0.064	0.027
	(0.104)	(0.015)
Economically disadvantaged status	0.051	-0.005
	(0.076)	(0.016)
Days of out-of-School suspension (Year 0)	0.102	-0.014
	(0.108)	(0.021)
Number of short-term suspensions (Year 0)	1.369**	0.424***
	(0.482)	(0.094)
Attendance rate (Year 0)	-0.631	0.012
	(2.991)	(0.244)
Academically and intellectually gifted	-0.050	-0.006
	(0.046)	(0.011)
Student with a disability status	0.148	0.114
	(0.197)	(0.088)
Limited English proficiency	-0.101	-0.008
	(0.121)	(0.034)
Male	0.187	0.024
	(0.172)	(0.027)
Asian-Pacific Islander	-0.024	-0.022
	(0.079)	(0.021)
Black	0.048	-0.004
	(0.091)	(0.026)
Hispanic	-0.072	-0.049
	(0.116)	(0.026)
American Indian	0.354	0.072
	(0.258)	(0.098)

Multiracial	0.605	-0.019
	(0.628)	(0.039)
Number of core course failures (Year 0)	0.180	0.037
	(0.160)	(0.023)
Grade point average (Year 0)	-0.147	-0.044**
	(0.082)	(0.012)
10th grade (dummy)	-0.204	-0.054**
	(0.101)	(0.016)
11th grade (dummy)	-0.299**	-0.058**
	(0.101)	(0.018)
Average number of students (squared)	-0.000	-0.000
	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	-0.000
	(0.000)	(0.000)
School performance score (squared)	0.000	0.000
	(0.000)	(0.000)
Constant	1.505	0.185
	(2.774)	(0.246)
Observations	12,630	12,630
R-squared	0.099	0.333

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table X4. *Analytic Sample 12 - Results for the Effect of CIS on Grade Point Average and Biology, English 2, & Math End of Course Tests.*

Variables	Unweighted GPA	Weighted GPA	Biology	English 2	Math 3
Served by CIS 1 year (2018)	0.001	0.045	0.112	0.012	0.174*
	(0.024)	(0.046)	(0.075)	(0.041)	(0.076)
Economically disadvantaged status	-0.033	-0.061*	-0.080	-0.046	0.024
	(0.023)	(0.027)	(0.070)	(0.062)	(0.060)
Days of out-of-School suspension (Year 0)	-0.002	-0.007	-0.028	-0.043	0.008
	(0.013)	(0.012)	(0.021)	(0.029)	(0.012)
Number of short-term suspensions (Year 0)	-0.038	-0.026	-0.037	0.062	-0.071
	(0.052)	(0.048)	(0.059)	(0.073)	(0.052)
Attendance rate (Year 0)	0.572*	0.706*	0.151	-0.892	-0.032
	(0.210)	(0.275)	(0.818)	(0.702)	(0.850)
Academically and intellectually gifted	0.111*	0.259***	0.652***	0.440***	0.387***
	(0.049)	(0.055)	(0.138)	(0.072)	(0.094)
Student with a disability status	-0.111	-0.188*	-0.202*	-0.495***	-0.287
	(0.059)	(0.083)	(0.083)	(0.070)	(0.152)
Limited English proficiency	-0.048	-0.110*	-0.545*	-0.621***	-0.378*
	(0.040)	(0.043)	(0.193)	(0.156)	(0.179)
Male	-0.079**	-0.091**	0.104	-0.049	0.049
	(0.024)	(0.027)	(0.074)	(0.079)	(0.052)
Asian-Pacific Islander	0.073	0.144	-0.076	-0.034	0.085

	(0.051)	(0.073)	(0.092)	(0.090)	(0.136)
Black	-0.071	-0.107	-0.210	-0.060	-0.127
	(0.058)	(0.063)	(0.106)	(0.053)	(0.066)
Hispanic	-0.040	-0.034	-0.076	0.055	0.089
	(0.044)	(0.068)	(0.085)	(0.057)	(0.089)
American Indian	-0.225***	-0.285***	0.041	0.185	-0.246*
	(0.042)	(0.055)	(0.254)	(0.131)	(0.091)
Multiracial	-0.109	-0.105	-0.502*	-0.195	-0.056
	(0.063)	(0.085)	(0.181)	(0.144)	(0.099)
Number of core course failures (Year 0)	0.092***	0.114***	0.120**	0.099**	0.092*
	(0.020)	(0.023)	(0.036)	(0.030)	(0.040)
Grade point average (Year 0)	0.793***	0.906***	0.742***	0.692***	0.710***
	(0.025)	(0.026)	(0.043)	(0.041)	(0.061)
10th grade (dummy)	-0.050	-0.021	0.505***	0.354*	0.610***
	(0.204)	(0.211)	(0.113)	(0.150)	(0.044)
11th grade (dummy)	0.062	0.120	0.806***	0.479***	0.954***
	(0.157)	(0.150)	(0.164)	(0.123)	(0.142)
Average number of students (squared)	-0.000*	-0.000*	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% economically disadvantaged (squared)	-0.000	-0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
School performance score (squared)	0.000***	0.000**	0.000*	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.082	-0.382	-2.258**	-1.720*	-2.747**
	(0.303)	(0.356)	(0.744)	(0.750)	(0.831)
Observations	3,300	3,300	3,328	4,315	3,967
R-squared	0.847	0.831	0.536	0.573	0.346

Note. Robust standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

Table X5. *Analytic Sample 12 - Results for the Effect of CIS on Probability of Dropping Out.*

Predicted probability for CIS students	Predicted probability for non-CIS students	Difference
.007	.005	.002
Observations	12578	

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