



College Advising Corps @ Boston University 2014-2018 Final Evaluation Report

Prepared by Evaluation and Assessment Solutions for Education, LLC



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Cover Photo: College Advising Corps @ Boston University advisers for the 2017-18 school year

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Executive Summary

In spring 2013, the Social Innovation Fund (SIF) awarded funding to the College Advising Corps @ Boston University (CAC). The funding allowed CAC to provide college advisers in the 33 Boston Public High Schools and in one additional Boston area charter school. Researchers from Stanford University and Evaluation and Assessment Solutions for Education (EASE) conducted the evaluation of CAC and their integration into the Boston area. This final report focuses on an impact study in Boston and College Advising Corps' expansion there beginning in Spring 2014. We track graduating high school seniors through the graduating class of 2018.¹ The Boston Public Schools (BPS) provided data on college attendance and student exit surveys as part of the evaluation plan.

CAC strives to increase the number of low-income, first-generation-college, and underrepresented students entering and completing higher education. CAC recruits and trains recent college graduates from partner higher education institutions across the country. These recent college graduates serve as full-time advisers. They provide support that high-need students need as they navigate the complex processes required to attend and matriculate in college and to secure financial aid. Advisers serve as full-time staff, working to foster a college-going culture within the schools they serve and directly provide peer advising to students one-on-one in the hopes of improving access and persistence to higher education. The *primary outcome* CAC aims to change for students is college attendance. These are adjacent to *intermediate outcomes* associated with college access such as the acquisition of college knowledge, improved perceptions or knowledge of the college access process, greater involvement in preparation, and greater parental involvement. Over the four years of the study, CAC served 34 schools. Over the entire study, CAC served 8,100 high school seniors. CAC also served underclassmen with questions about college, but we focus our evaluation on the high school seniors.

Prior to the Boston project, CAC completed several evaluations of their services in various markets. For example, in a randomized controlled trial among Texas high schools, CAC led to significant improvements in college enrollment in Texas, particularly among low-income students. Their attendance rates improved by roughly three percentage points. More broadly, whereas historical studies of college advisement in high school have failed to find significant impacts on college enrollment (e.g. Myers et al 2004, Maynard et al 2014), more recent studies have demonstrated that college advisement in high school can improve college access (e.g. Hoxby and Turner 2015, Cunha, Miller and Weisburst 2018, Carrell and Sacerdote 2016).

In this study, we utilize sampling strategies and analytical techniques appropriate for a “moderate level” of evidence according to the guidelines from the SIF. We focus on a “moderate” level of

¹ Due to the delay in processing a National Student Clearinghouse match until Winter 2019, college enrollment results in this report do not include the graduating class of 2018. An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

evidence for two reasons. First, CAC is a “whole school” model. Randomizing within schools would have disrupted the underlying model. Additionally, there was insufficient power to randomize at the school level given that there were only 33 public high schools in Boston and that all participated in CAC. Second, the staggered expansion of CAC facilitated a quasi-experimental design. Specifically, our design is a variant of a single group design that includes an interrupted time series with a control group. We compare outcomes for CAC and non-CAC schools prior to the CAC entering the Boston market. We then compare how these outcomes change between CAC and non-CAC schools as schools begin to transition into CAC. This type of model is often called a “difference-in-differences” model, and we use regression modelling to estimate this model. By the final cohort, all 33 BPS schools and one non-BPS Charter school are part of the program. Looking over the entire period (the 2011-12 to 2016-17 graduating cohorts), the sample includes nearly 20,000 students with 8,100 of these students in the treatment groups.² We rely on administrative data from Boston Public Schools and the National Student Clearinghouse to examine the primary outcomes. We utilize exit survey data provided by the Boston Public Schools to measure intermediate outcomes.

We augment our causal analysis with additional qualitative analysis. A mixed methods approach provides additional insights on the nature of the program and its impacts. Qualitative methods help us answer questions regarding the program’s impact on the college-going culture of schools, its effects on parents, and its influence on the advisers. We measure college-going culture with two kinds of data: student survey and site visits. Because CAC’s goals are diverse, a reliance upon both quantitative and qualitative research is essential to fully realize the impact of the program on its many constituents and to understand how and whether CAC has improved student outcomes. We additionally rely on internal student-tracking data provided by CAC and an adviser survey.

Our study focuses on seven central research questions that focus on both the program’s impact and implementation:

1. What is CAC’s impact on college enrollment, college choice and enrollment intensity particularly for the targeted students?
2. What is the program’s impact on students’ pathways to college?
3. How does CAC affect the college going culture?
4. How did CAC influence parents’ involvement in the college choice process?
5. How does CAC affect advisers’ attitudes and life choices?
6. How was CAC implemented in Boston including fidelity of treatment, the characteristics of services, and variations in implementation?
7. Was CAC cost-effective?

² An additional year of data (2017-18 graduating cohort) was analyzed after the completion of this report, which if included would bring the sample to nearly 23,000 students with 11,500 of these students in the treatment groups. An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

To answer the first research question, we provide descriptive data and estimate impacts using the difference-in-differences model. We view this research question as being confirmatory. The second research question is more descriptive and exploratory in nature. While customizing the analysis for Boston, it also establishes how the barriers for college entry are similar in Boston to other parts of the country. This reinforces the external validity of the analyses. The third and fourth research question draws on the survey and site visits and the fifth research question relies on the adviser survey. Our analysis for these research questions is exploratory. The sixth research question focuses on internal data including activity logs kept by advisers on their interactions with students. Our analysis here is purely descriptive. The final research question attempts to demonstrate the implications of the estimated impacts from the first research question.

We find that CAC led to significant improvements in college enrollment in Boston for certain population subgroups of particular importance to CAC's mission. Enrollment increases were particularly strong among low-income students who qualified for free/reduced price lunch (3.5 percentage points), Hispanic students (4.9 percentage points), and male students (5.8 percentage points). Additionally, we find that across all students, CAC led to a 2.8 percentage point increase in college enrollment, although the findings were not statistically significant. We also find evidence of increased likelihood of college preparation behaviors among students who met with CAC advisers.³

Stakeholders in schools report changes in school culture with regard to greater exposure and reach in terms of the college-going message, increased activity and services related to college advising, and increased knowledge of and exposure to college information including alternative postsecondary pathways.

Finally, beyond the student and school impact, the program is having an important impact on the advisers who serve. Specifically, advisers are more likely to have an interest in college access or college counseling as a career post-service, and excluding current graduate students, approximately, 70 percent of former CAC-BU advisers are currently employed in higher education, K-12, or youth-serving nonprofit organizations. We also find evidence that the program more than pays for itself in terms of increased economic benefits to students.

There were two deviations from our initial research plan. One was a small delay in implementation. In the initial year of the program, CAC was unable to enter schools until late in the academic year. While CAC advisers could still attempt to help students with college applications for two-year colleges in that year, they had less ability to influence four-year

³ Subsequent analysis that included an additional year of data (2017-18) shows that overall enrollment increased by 3.0 percentage points. Increases for certain student populations were as follows: low-income students who qualified for free/reduced price lunch (3.9 percentage points), Hispanic students (5.0 percentage points), and male students (7.5 percentage points). An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

applications which had largely been completed prior to CAC's entrance. The second is that we were unable to examine the role of academic course taking (aside from dual enrollment). This is widely recognized (e.g. Klasik 2012) as a falling off point for students. It is one that CAC has little influence over; however, the lack of it impedes us from fully exploring all aspects of the program's impact on students' pathways to college.

There were no significant changes to the budget to report. The timeline of the case studies changed as the first year of site visits took place in Spring 2015 and the final year of visits was in Spring 2017. No site visits were conducted during the 2017-2018 academic year.

Over the course of the grant, there were key changes to evaluation staff as well as program staff at CAC. The project manager for EASE, Dr. Rie Kijima, left the project in 2015, and was replaced by Dr. Jesse Foster-Hedrick for the remainder of the study. In 2014, College Advising Corps brought on a Director of Evaluation and Impact Measurement, Sarah Shah. This internal role was seen as an important step for CAC to develop more internal capacity for evaluation and research as they continued to grow.

As a program, CAC continues to expand its services to new schools and states, as well as grow its internal evaluation staff and capabilities. CAC continues to partner with EASE and other evaluators to identify best practices and other ways to strengthen its program. Specifically, CAC will continue to assess its impact in Boston upon receipt of the 2018 NSC data and will continue to explore new avenues and partnerships that allow them to have an even stronger impact on college enrollment. For example, CAC collaborated with four other college access partners under the Boston WINs initiative funded by the State Street Foundation. The goals of the initiative were to improve college enrollment and persistence among Boston students by having organizations work more collaboratively in offering services. Beyond their work in Boston, CAC continues to conduct research on innovative ways to encourage more students to attend college, such as interventions that increase parental involvement and help students with the college match and fit process.

I. Introduction

Improving college access and completion is critical to reducing economic inequality within the United States and to increasing the United States' international competitiveness; yet planning for, applying to, attending, and succeeding in college are not easy for many families. Many well-qualified students are discouraged from pursuing higher education by avoidable barriers such as a lack of information about college admissions and financial aid (Avery & Kane, 2004).

College advising is one of the key mechanisms by which policymakers, foundations, and high schools attempt to aid students as they navigate the college access "gauntlet" (Advisory Committee on Student Financial Assistance, 2005; Klasik, 2012), and across the country, there is a large network of college access programs that provides assistance to underserved students.

The diversity of college access programs is staggering, even within the same school or community. These programs vary dramatically by which organization sponsors them, where their funding comes from, how they are organized, which populations they target, and what interventions they employ to improve college preparation and increase postsecondary enrollment (Gandara, 2001). A few of these programs are large scale (e.g. Upward Bound and GEAR UP), but many are small and local, and therefore do not lend themselves well to rigorous evaluation and have limited external validity. Moreover, the models differ substantially. Some focus on a select cohort of students (e.g. Upward Bound) while others focus on the entire school.

Despite the enormous investment by school districts, states, the federal government (the federal government funds TRIO programs at \$839.7 million for FY 2015 (Council for Opportunity in Education, 2015), and non-profit organizations, we know very little about the efficacy of these programs. Although some programs have conducted small-scale evaluations, few have done so using rigorous causal methods (Maynard et al., 2014). Establishing valid counterfactuals for students participating in a college access program is challenging due to the selection bias of schools and/or students choosing to work with the program.

The focus of this impact study is the College Advising Corps @ Boston University (CAC). CAC strives to increase the number of low-income, first-generation-college, and underrepresented students entering and completing higher education. CAC recruits and trains recent college graduates from partner higher education institutions across the country. These recent college graduates serve as full-time advisers in the state's persistently lowest performing schools. CAC attempts to provide the support that high-need students might need to navigate the complex processes of college admissions and matriculation and securing financial aid. Advisers serve as full-time staff, working to foster a college-going culture within the schools they serve and directly provide peer advising to students one-on-one in the hopes of improving access and persistence to higher education.

In this impact study, we provide evidence around the primary research question as to whether College Advising Corps (CAC) has an impact on students' college enrollment outcomes in the Boston area. The audience for this report is manifold including funders, collaborating partners, policymakers and the public more generally.

In this study, we specifically test whether providing information and support to high school students improves their likelihood of enrolling in postsecondary education. We attempt to resolve the causality issues discussed above by using a quasi-experimental difference-in-differences model. This portion of the study will have high internal validity due to the usage of a quasi-experimental design. Furthermore, this study will employ survey, internal CAC, and case study data in order to understand student aspirations and college-going behavior, as well as college-going culture in schools. Combined, the two methodological approaches we employ in this research design enables us to produce a moderate level of evidence.

Additionally, the report overviews how well the program achieved its intended implementation goal as described in the theory of change below. For this advising-focused program, we rely on

data such as frequency of meetings between students and advisers and completion of the various steps necessary to complete their college applications, such as registering for the SAT/ACT, completing the FAFSA forms, etc. These data are regularly collected using CAC's internal database, GRACE. Furthermore, we assess the cost-effectiveness of the program to see if the program yields a high return relative to the cost of the program. These data measure the degree of how well the program is being implemented according to the plan initially set forth.

Program Background and Problem Definition

CAC's theory of change is straightforward. Students must complete a set of steps in order to attend college. These steps include items such as preparing for college, formulating expectations about college, preparing college applications, applying for college, taking college entrance exams, completing college financial aid forms, and selecting a college. If students complete these steps, they can attend college. Families and schools can help students accomplish these steps; however, despite their best efforts, some of the steps remain uncompleted. There are several potential reasons why these steps are uncompleted: students and their families may lack information; they may require assistance in understanding the complexity; schools may be overwhelmed or have ineffective outreach strategies; and so on. CAC inserts a full-time adviser to identify the obstacles that exist in their school and among their students and assist students with the entire process to overcome these obstacles. Adviser training ensures that they have the time and information necessary to help students attempt these complex processes.

Barriers to college entry are thought to fall into three categories: academic, financial, and information (Long & Riley, 2007). Most college access programs attempt to address one or more of these three barriers by, for example, providing tutoring services (academic), last dollar scholarships (financial), or advising to overcome the complexity of the admission and financial aid process (information). CAC, and many other college access programs, primarily focuses on the information barrier by providing students information on the benefits of college and helping students navigate the series of steps necessary to successfully enroll.

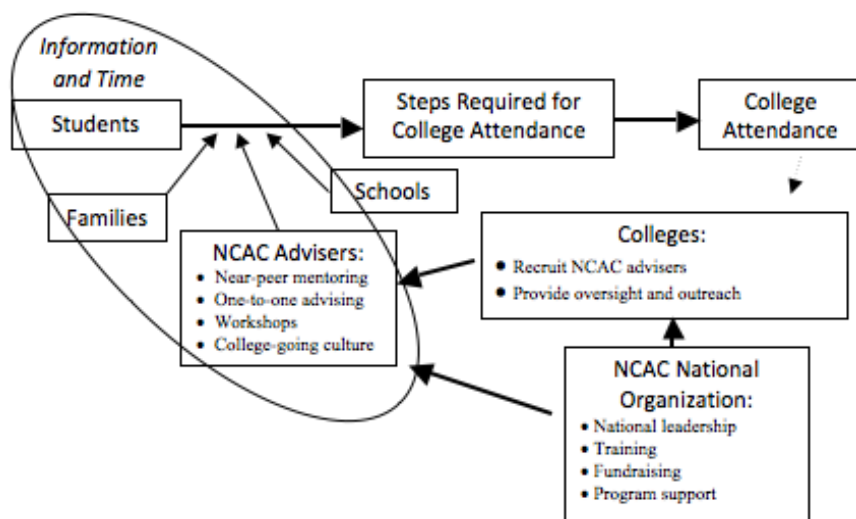
Klasik (2012) argues that nine steps are necessary for a student to apply to a four-year college including taking the SAT/ACT, meeting with a college counselor, and applying for financial aid. He demonstrates that students who complete the first steps in the sequence are far more likely to complete the subsequent steps suggesting access programs that encourage students to take action early will generate momentum that results in enrolling. Furthermore, we know many students do not complete these steps, as only 59 percent of students who aspire to attain a four-year degree actually apply, and of those who do apply, only 41 percent complete the steps necessary to enroll in a four-year college during their senior year (Roderick, Nagoaka, Coca, & Moeller, 2008). The same study notes that even many high achieving disadvantaged students do not consider attending a four-year institution and many who do, never applied. Other attempts to characterize academic deficiencies exist. Adelman (1999, 2006) explore the academic preparation necessary for

students to succeed in college; however, as recent research has demonstrated, academic preparedness is a necessary, but not sufficient, condition.

Many of these students may lack role models and advocates who can assist them in navigating the college admission process. We know that complexity can deter academically qualified students from receiving aid (Dynarski & Scott-Clayton, 2006) and that providing information and application support for filing the FAFSA increases aid receipt and increases college enrollment (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012). College access programs that provide this support and serve as an advocacy role for students may increase their chances of enrolling. Bowen, McPherson, & Chingos (2009) suggest their own list of steps required to successfully enroll in college including applying to multiple colleges and developing mentoring relationships. They find that a strong college-going culture in high school is the best predictor of whether students will take the necessary steps to apply for college. Hence, the literature suggests that strategies such as creating a college-going culture, assisting students with financial aid and college applications, building relationships with advisers, and embarking early on the steps necessary to apply will lead to greater college enrollment. These are the exact strategies employed by CAC.

CAC’s model is a targeted approach that integrates student supports into the school model to address non-academic barriers to student achievement. CAC’s logic model is illustrated in Figure 1.1

FIGURE 1.1
College Advising Corps’ Logic Model



Students must complete a set of steps in order to attend college. These steps include such items as preparing for college, formulating expectations about college, preparing college applications, applying for college, taking college entrance exams, completing college

financial aid forms, and selecting a college. If students complete these steps, they can attend college. Families and schools can help students accomplish these steps; however, despite their best efforts, some of the steps remain uncompleted. There are several potential reasons why these steps are uncompleted – students and their families may lack information; they may require assistance in understanding the complexity; schools may be overwhelmed or have ineffective outreach strategies; and so on. Information and time, circled in Figure 1, captures some of the barriers faced by students, families, or schools. They all might have some information and time but not fully. CAC inserts a full-time adviser who can help with information and time barriers to help students and families in the process.

CAC partners with colleges and universities in the state to recruit and train recent college graduates from these partner institutions to serve as full-time college advisers in high schools. Advisers participate in a multi-week, residential summer training program prior to their placement in a high school. The advisers serve as near-peer mentors and often have characteristics closely aligned with the population of students they serve at the high schools. For example, most advisers are themselves first-generation college graduates. They typically qualified for Pell grants in college and are typically from under-represented minority groups.

Advisers agree to serve for one year with the option to renew for a second year. While in the schools, advisers work in close collaboration with school counselors, teachers, and administrators within their school to foster a school-wide “college-going” culture.

Although advisers serve all students at the school, their work primarily focuses on low-income and first-generation college students who, due to a lack of information and misperceptions about costs and aid, historically have not been finding their way to a postsecondary education. As an example in Boston, free/reduced price lunch students were 34 percent more likely to have visited with a CAC adviser than other students.

Advisers offer direct support to students in the form of individual advising sessions, group sessions with students, and group sessions with students and parents. Typically, they assist seniors with the college search process, college application process, and financial aid process. This work can include encouraging students to consider a wide range of postsecondary options taking into account fit, taking them on college visits, establishing timelines, applying for fee waivers, interpreting communications from colleges such as offers of admission and financial aid, and a host of other general supports as the students navigate the college admission and enrollment process. They also work with underclassmen to encourage students to consider and plan for higher education and focus on specific preparation activities such as studying for and taking the SAT or ACT.

Five innovations distinguish CAC from other college access and support programs. First, CAC is a near-peer model. The program recruits recent college graduates as advisers whose backgrounds are similar to the high school students they serve. More than 60 percent of the advisers are themselves first-generation college graduates.

Secondly, CAC works in partnership with colleges and universities. These institutions share CAC's commitment to increasing the numbers of low-income, first generation, and underrepresented students who succeed in postsecondary education, and they commit their own staff and resources to supporting CAC's work in their states.

Third, CAC provides full-time college advisers. CAC advisers partner with counselors, teachers, and administrators and function as additional staff members whose focus is singularly on improving the school's college-going culture and ensuring that students apply and enroll in colleges where they will succeed.

Fourth, CAC focuses on best fit. CAC advisers focus on helping students identify and apply to postsecondary programs that will serve them well academically and socially—thus increasing the likelihood that these students will earn their degrees.

Finally, CAC implements a whole-school approach rather than a cohort model. In other words, advisers are available to all students rather than a specific set of students who are identified based on academic record or an application process.

CAC was first established in 2005 at the University of Virginia, and now operates out of the University of North Carolina at Chapel Hill. The program operates in 16 states, in partnership with 26 colleges and universities. The program began with 14 college advisers who were placed in communities where college-going rates were below the state average. Currently, the program places more than 700 advisers in schools across the country. In Boston, CAC served five schools in 2013-14. This included 639 high school seniors. By the 2017-18 school year, CAC was serving 33 Boston high schools and one Boston area charter school, a total of nearly 3,300 high school seniors. From Spring 2014 to Spring 2017, CAC served 8,100 high school seniors.

Overview of Prior Research

Literature stretching back to the 1980s identifies inequities in guidance support to high school students (Lee & Ekstrom, 1987). Low-income and minority students are less likely to have access to guidance counselors who can advise qualified students to prepare for, apply to, and enroll in higher education (Avery & Kane, 2004). There is also evidence that information is related to college attendance as students who are more informed about financial aid are more likely to attend (Tomas Rivera Policy Institute, 2004).

Guidance and support about specific components at specific stages of the college enrollment process improves enrollment. We know from the H&R Block study that providing assistance with completing the FAFSA improves aid receipt and enrollment (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012). We also have evidence that providing information via text messages over the summer before college prevents students who already intend to enroll from failing to show up in the fall (Castleman, Page, & Schooley, 2014; Castleman, Arnold, & Wartman, 2012).

Although we have evidence that information plays a role in the decisions to apply for and attend higher education, these studies do not focus on traditional college access programs which provide comprehensive information and guidance to students. It is possible that the lack of access to information and advising is a major cause of unequal college enrollments among wider populations of disadvantaged students in multiple components of the college enrollment process, which college access programs attempt to ameliorate.

There are very few studies of college access programs which employ rigorous experimental or quasi-experimental techniques. There are two key difficulties in conducting rigorous research on college access programs. First, college access programs are diverse in nature and contain varied levels of student supports, counseling, and academic help. Few programs are adopted at a sufficiently large scale to facilitate a large-scale evaluation with random assignment. In their systematic review of the efficacy of college advising programs, Maynard et al. (2014) report results for many studies with only a few hundred students or less.

Another problem in the evaluation of college access programs is selection bias. Even when programs exist on a large enough scale to facilitate evaluation, these programs purposefully target schools with large proportions of disadvantaged students. Of the 18 broadly defined college access programs that have been rigorously evaluated, eleven rely on some form of a quasi-experimental matching design to estimate the effects of the program (Maynard et al., 2014). In nearly all cases, the randomized controlled trials provide smaller impact estimates than the quasi-experimental studies suggesting that matching techniques do not fully account for bias.

We consider three notable randomized controlled trials of college access programs similar in structure to CAC that serve as a critical backdrop to our work: the study of Upward Bound conducted by Mathematica Policy Research (Myers, Olsen, Seftor, Young, & Tuttle, 2004), Avery's (2013) study of College Possible, and Carrell and Sacerdote's analysis of the Dartmouth College Coaching Program.

Starting in 1991, about 2,800 students were randomly assigned either to participate in one of 67 Upward Bound programs or to serve in a control group. Mathematica found no impact on enrollment although there may have been an increase in four-year college attendance. The effects were largest for students with the lowest ex-ante college aspirations. We note that Upward Bound and CAC are very different approaches, and given the dearth of evidence on college preparation programs more generally, an evaluation of CAC seems warranted.

Avery (2013) also presents evidence that high school students working directly with a college adviser can improve their likelihood of enrolling in a four-year college. Through a small scale randomized controlled trial of the College Possible program, he identifies that by working with the program for two years, students increase their four-year college enrollment rates by 15 percentage points. The experiment only includes 238 students, and the treatment is incredibly intensive as students receive 320 hours of support over their two years.

Our study complements the existing literature by providing an evaluation of a large-scale implementation of a college access program across 29 schools including over 9,000 students over the course of the study. The program is a full-school model potentially proving much more cost effective than many individual advising programs. Our study provides some of the best evidence to date on the effectiveness of similar programs, as well as provide valuable insight on challenges and best practices associated with college access programs in other states. While ideally we would like a systematic and rigorous evaluation across all CAC sites, the unique opportunity in Boston should provide lessons across the Corps.

Prior to the Boston project, CAC completed several evaluations of their services in various markets. For example, starting in 2011-12, CAC collaborated with the Texas Higher Education Coordinating Board (THECB) to conduct a randomized controlled trial among Texas high schools. The randomized controlled trial included 111 schools of which 36 participated in CAC. This study was the first to identify the causal impact of CAC's program on college enrollment. CAC's model was developed based on prior academic research⁴ which identified the strength of the high school's college-going culture, assistance with college financial aid forms and applications to increase completion rates and providing connections and conversations to teachers and others to ensure students are well-matched to a college that will best meet their academic and social needs as keys to improving college access.

The study found a preliminary level of evidence that CAC led to significant improvements in college enrollment in Texas. This was particularly strong among low-income students who qualified for free/reduced price lunch. In that group, college enrollment increased by roughly 3 percentage points. Additionally, we found evidence that the experimental conditions change after the first two years, providing lessons to CAC in scaling up and maintaining long-run relationships with schools. We also found evidence that the program more than pays for itself in terms of increased economic benefits to students. School stakeholders report changes in school culture: greater value and expectations for college-going, increased activity and services related to college advising, and greater accessibility and visibility of college guidance work.

In addition to the Texas study, there have been many on-going research projects of CAC that have been used to measure the program's impact and implementation. First, the findings from multi-state case studies have shown that the advisers face different sets of organizational challenges depending on the preexisting college-going culture at their schools. Second, CAC engaged in a "soft cohort" model in Virginia where they randomly selected some students to receive additional supports. This research is ongoing. CAC has also tracked "summer melt" interventions. Summer melt is the phenomena where some high school seniors change their

⁴ See Melissa Roderick, Jenny Nagoaka, Vanessa Coca, Eliza Moeller, "From High School to the Future: Potholes on the Road to College," the Consortium on Chicago School Research at the University of Chicago, March 2008; William Bowen, Matthew Chingos, and Michael McPherson, *Crossing the Finish Line: Completing College at America's Public Universities* (Princeton University Press, 2009); and Eric Bettinger, Bridget Long, Phillip Oreopoulos and Lisa Sanbonmatsu, "The Role of Simplification and Information in College Decisions: Results from the H&R Block FAFSA Experiment" (NBER Working Paper, 2009).

minds about entering college in the fall following graduation. The main finding from this study suggests that additional support during the summer in preparation for college reduces incidences of summer melt. These studies have further implications on what kind of additional support students might benefit from the advisers in preparation for college. These on-going research projects help us further understand the barriers and challenges associated with college access.

Overview of Impact Study

The purpose of this impact study is to provide both descriptive and causal evidence on the impact of CAC in Boston. The work of CAC includes a number of activities oriented to achieving student outcomes. The *primary outcome* for students is college attendance. These are adjacent to *intermediate outcomes* associated with college access such as the acquisition of college knowledge, improved perceptions or knowledge of the college access process, greater involvement in preparation, and greater parental involvement. Moreover, we also measure changes in attitudes and life choices of advisers, to understand how the program has influenced advisers in their commitment to public service. We rely on five sources of data to assess these outcomes: the National Student Clearinghouse (NSC), the BPS Senior Exit Survey, internal advisor-student interaction data provided by CAC, an adviser survey, and case study data. We rely on both descriptive and causal evidence.

In this study, we target a “moderate level” of evidence according to the guidelines from the SIF. We focus on a “moderate” level of evidence for two reasons. First, CAC is a “whole school” model. Randomizing within schools would have disrupted the underlying model. Additionally, there was insufficient power to randomize at the school level given that there were only 33 public high schools in Boston and that all participated in CAC. Second, the staggered expansion of CAC facilitated a quasi-experimental design. Starting in Spring 2014, CAC collaborated with the Boston Public Schools (BPS) district to do a gradual rollout of the program over a three-year period to eventually have an adviser in all Boston public high schools. The rollout began in five schools in Spring 2014 and eventually expanded to 33 schools by the 2017-2018 academic year. The rollout also included one charter school in the Boston area. The preliminary schools were chosen jointly by CAC and Boston Public Schools (BPS). Our strategy for estimating the impacts takes advantage of this rollout.

Specifically, our design is a variant of a single group design that includes an interrupted time series with a control group. We compare outcomes for CAC and non-CAC schools prior to the CAC entering the Boston market. We then compare how these outcomes change between CAC and non-CAC schools as schools begin to transition into CAC. This type of model is often called a “difference-in-differences” model, and we use regression modelling to estimate this model. Over the entire period (the 2011-12 to 2017-18 graduating cohorts), the sample included about 23,000 students with 11,500 of these students in the treatment groups. For the purpose of this report we rely on a sample of nearly 20,000 students (the 2011-12 to 2016-17 graduating cohorts), with 8,100 of these students in the treatment groups. We rely on administrative data from Boston Public Schools and the National Student Clearinghouse to examine the primary outcomes. We utilize exit survey data provided by the Boston Public Schools to measure intermediate outcomes.

We augment our causal analysis with additional qualitative analysis. A mixed methods approach provides additional insights on the nature of the program and its impacts. Qualitative methods help us answer questions regarding the program's impact on the college going culture of schools, its effects on parents, and its influence on the advisers. We measure college-going culture with two kinds of data: student survey and site visits. Because CAC's goals are diverse, reliance upon both quantitative and qualitative research is essential to fully realize the impact of the program on its many constituents and to understand how and whether CAC improved student outcomes. We additionally rely on internal student-tracking data provided by CAC and an adviser survey.

Research Questions

While dozens of college access programs serve students across the country, each program offers a unique model and it is difficult to generalize across models. We examine multiple outcomes of interest to determine CAC's impact with both quantitative and qualitative methods.

Impact Research Questions

The study proposed five impact research questions (two confirmatory and one explanatory):

- 1) **Confirmatory Impact:** What is the program's impact on college access, college choice, and enrollment intensity relative to what would have happened in the absence of the program?
 - a) To what extent have CAC advisers increased the likelihood that students attend any college once they complete high school?
 - b) Have CAC advisers increased the likelihood that students attend two- or four-year colleges relative to what they would have done in the absence of any counseling?
 - c) Have CAC advisers increased the likelihood that students are engaged in full-time study in college?
- 2) **Exploratory Impact:** What is the program's impact on the pathways to college relative to what it would have been in the absence of the program?
 - a) What are the key milestones in CAC students' academic careers which correlate most strongly with subsequent high school completion, college attendance, and outcomes in college?
 - b) Do the milestones in CAC schools correlate with the national milestones identified by prior research (e.g. Adelman's toolbox studies)?
 - c) Are there significant patterns where CAC students "fall off" the path toward college attendance?

- d) What role, if any, does CAC's intervention play in identifying and correcting these "falling off" points?
 - e) How has the program impacted perceptions of students' postsecondary aspirations, involvement in college preparation activities, and overall attitude toward college-going?
- 3) **Exploratory Impact:** What is the program's impact on school's college-going culture relative to what it would have been in the absence of the program?
- a) To what extent are the advisers able to work to affect change beyond the triage done with seniors by working with freshmen, sophomores, and juniors?
 - b) How do CAC advisers work with other school personnel and external providers on college preparation and advising activities?
 - c) In what ways do the advisers engage with teachers to promote college going?
 - d) How does the program encourage or facilitate parent involvement in college preparation?
- 4) **Exploratory Impact:** What impact has participation in the program had on the advisers' attitudes and life choices?

We find that CAC led to significant improvements in college enrollment in Boston for certain population subgroups of particular importance to CAC's mission. Enrollment increases were particularly strong among low-income students who qualified for free/reduced price lunch (3.6%), Hispanic students (4.9%), and male students (5.7%). Additionally, we find that across all students, CAC led to a 2.8% percentage point increase in college enrollment, although the findings were not statistically significant. We also find evidence of increased likelihood of college preparation behaviors among students who met with CAC advisers.⁵

School stakeholders report changes in school culture with regard to greater exposure and reach in terms of the college-going message, increased activity and services related to college advising, and increased knowledge of and exposure to college information including alternative postsecondary pathways.

Finally, beyond the student and school impact, the program is having an important impact on the advisers who serve. Specifically, advisers are more likely to have an interest in college access or college counseling as a career post-service, and approximately 70 of former Boston CAC advisers are currently employed in higher education.

⁵ Subsequent analysis that included an additional year of data (2017-18) shows that overall enrollment increased by 3.0 percentage points. Increases for certain student populations were as follows: low-income students who qualified for free/reduced price lunch (3.9 percentage points), Hispanic students (5.0 percentage points), and male students (7.5 percentage points). An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

There were two deviations from our initial research plan. One was delays in implementation, which actually served to strengthen the evaluation by providing additional pre-program data. The second is that we were unable to examine the role of academic course taking (aside from dual enrolment). This is widely recognized (e.g. Klasik 2012) as a falling off point for students. It is one that CAC has little influence over; however, the lack of it impedes us from fully exploring all aspects of the program's impact on students' pathways to college.

Implementation Questions

A second, complementary strand of research examines CAC's program implementation. This information will aid the program in determining how to improve current efforts. Studying the program's effects will also serve the more practical element of assisting in the program's fundraising and expansion efforts. Our specific program implementation research questions include:

- 5) How did CAC's Boston expansion take place?
 - a. Did the treatment group receive services as planned? What kinds of services did the comparison group receive?
 - b. What are the characteristics of students who actually received services? To what extent did the program reach out to first generation college students?
 - c. What were the most important ways in which the model as implemented differed from the model as planned?
 - d. How much variation in implementation fidelity was there across sites? On what aspects of implementation was the greatest variation?
- 6) Was the program cost effective in that its long-run projected benefit provides a high return relative to the cost of the program?

Internal CAC data provide evidence that CAC was successful at providing key postsecondary services to their target demographic, primarily underrepresented minorities including first-generation college students. Although there were some deviations in the CAC model in particular schools because of size and student population, the program does allow for a certain level of autonomy in program implementation to best meet the varied needs of schools. Finally, we find evidence that the program more than pays for itself in terms of increased economic benefits to students.

Contribution of the Study

Great diversity exists amongst college access programs in terms of size (local versus national), sponsorship and funding, organization, student populations served and the interventions used. Most notably, in terms of evaluating their impact, the models can differ substantially in whether they focus on a select cohort of students or the whole school. While there have been tremendous investments made by districts, states and the federal government, little is known about the

efficacy of the programs. While some programs have conducted small-scale evaluations, few have used rigorous causal methods (Maynard et al., 2004).

This study tests whether College Advising Corps has an impact on students' college enrollment outcomes. Specifically, we test whether providing information and support to high school students improves their likelihood of enrolling in postsecondary education. The answer to this question is important for policymakers, government and non-profits making investments in college access programs generally. We attempt to resolve the causality issues by using a quasi-experimental design. Using this methodological approach, the main contribution of this research study is to measure the impact of the CAC advisers who serve in high schools as full-time college counselors. Also, this study further strengthens our understanding of whether calibrating students' expectations and preparing students for college improves the likelihood that students succeed in college. Moreover, it extends existing literature by measuring whether advisers' outreach to the entire school changes the schools' college-going culture. This holistic approach provides a more comprehensive understanding of ways to improve college access and retention among high school students who may need additional support to take the necessary steps to successfully apply, enter, and stay in college. This study fills a gap in the literature on the effectiveness, influence, and impact of advisers on high school students' college access and retention.

The estimated impacts and the subgroups impacted are slightly larger than the results of the RCT that CAC conducted in Texas. The symmetry of the results provides some external validity and strengthens the evidence on CAC's impact.

While the estimated impacts are consistent with prior study, the level of evidence is moderate and not strong. The saturation of the Boston market and the whole-school nature of the intervention make it so that stronger implementation models would have been inconsistent with the program's model. For example, individual randomization would have improved the strength of the evidence, but the underlying intervention would have had to have been altered to accommodate such a design. The chosen design is the strongest design that we could have utilized given the operational constraints. Future studies might be able to find ways to continue to improve the strength of the research design.

II. Study Approach and Methods

Impact Study Design

The purpose of this final impact study is to provide both descriptive and causal evidence on the impact of CAC in Boston. As mentioned, we target a "moderate level" of evidence according to the guidelines from the SIF. Our primary estimation strategy for the impact study takes advantage of the staggered rollout in BPS. The rollout began in five schools in Spring 2014 and eventually expanded to 33 schools (and an additional charter school) by the 2017-2018 academic

year. Table 2.1 provides a breakdown of the student sample both preceding and during the years of the expansion.

Table 2.1

Breakdown of treatment and control sample

	Schools		Students	
	No CAC	with CAC	No CAC	with CAC
2012	28	0	3,602	0
2013	28	0	3,495	0
2014	23	5	2,514	639
2015	14	14	1,508	1,761
2016	5	23	960	2,417
2017	0	29	0	3,289
2018	0	33	0	3,459

SOURCE: 2012-2017 NSC data

NOTE: Report findings only rely on data from 2012-2017

NOTE: Table only includes schools for which BPS provided NSC data

Our design is a variant of a single group design that includes an interrupted time series with a control group. We compare outcomes for CAC and non-CAC schools prior to the CAC entering the Boston market. We then compare how these outcomes change between CAC and non-CAC schools as schools begin to transition into CAC. This type of model is often called a “difference-in-differences” model, and we use regression modelling to estimate this model.

For the period discussed in this report (the 2011-12 to 2016-17 graduating cohorts), the sample includes nearly 20,000 students with 8,100 of these students in the treatment groups.⁶ We rely on administrative data from Boston Public Schools and the National Student Clearinghouse to examine the primary outcomes. We utilize exit survey data provided by the Boston Public Schools to measure intermediate outcomes.

The basic strategy in a difference-in-differences model is to establish the differences between CAC and control schools prior to the implementation of CAC in Boston. Once CAC has started, the goal is then to re-measure the differences between CAC schools and the control schools. The degree to which this difference has changed reveals the effect of the CAC on a specific outcome. In some sense, late adopters of the CAC and pre-program data help us estimate what the counterfactual would have been in the absence of the program. In the initial years, the impacts of CAC arise both from the differences in pre-program outcomes and the differences that emerge once schools formally become part of CAC.

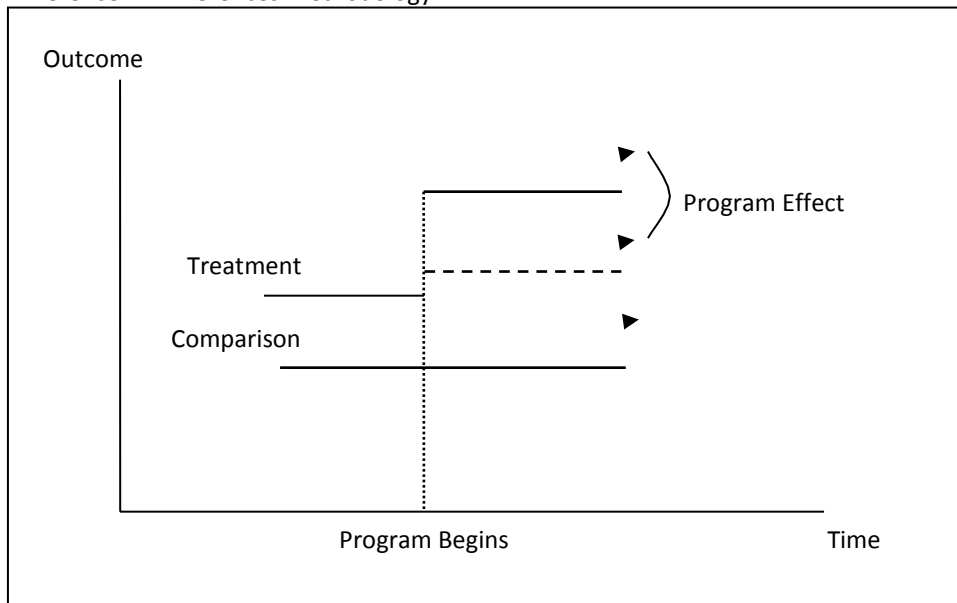
Figure 2.1 illustrates how a difference-in-differences analysis works. The key underlying assumption is that the treatment and comparison schools are on similar trajectories prior to the

⁶ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

introduction of CAC. If indeed those schools are on the same trajectories prior to CAC then we would have expected them to maintain their observed difference if CAC had not been introduced. Hence, any change in the trajectory of CAC schools should reflect an impact of the program. Difference-in-differences models provide moderate evidence. While we can empirically control for observable differences, our model could lose internal validity if there are unobserved, school and time varying factors that lead to changes in enrollment. As we discuss below, in one specific case, there are documented external changes that lead to dramatic changes in the school unrelated to CAC.

In terms of external validity, the difference-in-differences model should provide good evidence. BPS is similar to many urban schools throughout the country. Moreover, the symmetry between the findings in Boston and those in the prior RCT in Texas provide some comfort in the external validity. In one specific case (visits to campuses), our results might differ somewhat. Boston has an abnormal number of colleges and universities, and the average student in Boston has visited at least one college campus. Many other locations do not have such saturation.

FIGURE 2.1
Difference-in-Differences Methodology



Empirically, we estimate impacts from the difference-in-differences model using Equation 1:

$$(1) \quad y_{it} = a_i + b_t + c \cdot X_{it} + d \cdot \text{Treatment}_{it} + e_{it}$$

where y_{ijt} refers to an outcome for school i at time t . a_i represents a fixed effect for each of the schools. b_t refers to a time fixed effect to control for regional trends over time. X_{it} refers to school-level (time varying) covariates including school size, the percent of the school on free/reduced lunch, and the percent of the school from various minority groups. Given the inclusion of fixed effects for the school, we are fully controlling for time-invariant characteristics

of the individual schools. $Treatment_{it}$ represents whether school i was part of the treatment at time t . As such, the coefficient “ d ” measures our estimate of the effect of the treatment on the respective outcomes. This treatment effect is the result of measuring changes from pre-existing differences across early and late adopters. It represents how early adopters have changed relative to late adopters since the introduction of the program. e_{it} is a school specific error term that varies over time.

We use enrollment data from all BPS high schools from the 2011-12 school year until the 2016-17 school year.⁷ Our data comes from the Boston Public Schools and includes college enrollment data for all students. While we have expressed Equation 1 in terms of school-year observations, the actual data we use is at the individual student level. Given that the data are administrative data, there is no attrition in our sample. The NSC data track nearly 94 percent of all college enrollments, and failure to find a student in the data suggests that the student did not enroll in college. In addition to the causal analysis, we use NSC data to assess overall trends in college enrollment across Boston public schools, within CAC schools, and for particular subgroups of students.

Throughout the course of the study, a number of schools in Boston went through dramatic changes. Boston reoriented its alternative schools and vocational technology schools. Seven schools that were initially targeted for the intervention were reconstituted at the same time that CAC entered. The combined enrollment in the 2012-13 school year was 151 students in these seven schools. Half of these students were at one of the seven schools, and that school completely closed in the next school year. In each of these seven cases, the fundamental mission of the school was based around career preparation or high school graduation rather than college entrance. In the two years prior to CAC entering these schools, the college going rate in these seven schools had fallen by nearly 20 percentage points while the college going rate in the overall district in the same period declined by 5 percentage points. Moreover, in some years, unsurprisingly, no students attended college or NSC data were unavailable from the district given the low enrollment (below the minimum cell level of 10 students). BPS flagged the data for these schools as being suspect. We include data for the largest of these schools and the only one for which data are available across the full sample. The results are robust if we include all available student observations for all available years.

In order to measure the impact of CAC on intermediate outcomes associated with college access, we relied on student survey data, internal CAC data, and case study data. First, BPS distributes an annual Senior Exit Survey to all graduating seniors, and the instrument measures, among other things, college aspirations in terms of type and degree, alternative postsecondary aspirations, financial aid behaviors, school and family involvement in college, and involvement in various college preparation activities. EASE requested to add questions to the 2015 survey specifically addressing the involvement of students in various college preparation activities, such as the

⁷ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

number of college visits a student went on, as well as identifying different college information sources utilized by students. Additionally, in 2016, EASE added questions addressing parent involvement in the college preparation process. Boston administers the senior survey during spring before students graduate. The response rate for the survey is 72 percent across all years. We find no differential change in response rate by whether the CAC has a presence at the school.

To measure the impact of CAC on college-going culture, we developed interview protocols for the site visits. Interview protocols were developed based on previous CAC evaluations of college-going culture. In addition, the CAC-Boston University Program Director and CAC's Director of Evaluation provided feedback on questions. The protocols were updated annually to allow for variation in aspects of college-going culture to be explored. For example, during the final year of site visits, we decided in collaboration with CAC to focus part of the interviews exclusively on how a school discusses with and supports students interested in alternative postsecondary pathways, including community college and vocational school. Interviews lasted approximately 45-60 minutes, and all interviews were transcribed for accuracy.

Finally, to assess the impact of the program on CAC advisers, we relied on data from an annual CAC Adviser Survey. The survey gathers data both on advisers' experiences in schools, as well as their future life plans. The survey is administered annually in the spring by EASE, and the results are anonymized before being shared back with CAC.

Implementation Study Design

In order to appraise how well the program achieved its intended goal as described in the theory of change, CAC regularly monitored progress on how the program was being implemented in schools. The implementation evaluation directly assesses implementation fidelity as is relevant to the work of CAC. For this advising-focused program, we will rely on data such as frequency of meetings between students and advisers and completion of the various steps necessary to complete their college applications, such as registering for the SAT/ACT, completing the FAFSA forms, etc. When the study began, these data regularly were collected using an Excel data tracker, referred to as the Student Tracker. The Student Tracker data were updated each day by the CAC adviser with the guidance of the Program Director.

In 2015, as a result of the maturation of the organization, CAC established a database for national reporting called GRACE. GRACE, Getting Results and Creating Equity, is a web-based tracking tool used to collect data on specific key performance indicators. In comparison to the previously used Excel data tracker, GRACE has greater functionality in helping advisers enter data, view data, and take action based on data. Additionally, and perhaps most importantly, GRACE moved tracking from being run by an outside organization (EASE) to an internal staff member. This provided additional support that the evaluation capacities have increased for CAC as a result of the SIF. While advisers track many of the same data fields on GRACE they had previously been tracking, the platform allows them to apply student filters and run case management reports to determine which students are off-track and need to be prioritized.

GRACE provides historical records on every student visit throughout CAC schools. Advisers record the duration of the meeting, the topic discussed, the goals set, and so on for each of these visits. Additionally, advisers record group meetings such as class presentations. Finally, advisers keep track of key student demographics, such as data on gender, free/reduced price eligibility, ethnicity, and first generation college-going status. Both regional partners and CAC can create reports based on these data to monitor fidelity of program implementation. GRACE data provides substantial evidence that CAC was providing significant student services to CAC students.

Using the estimated impacts, we also conduct a cost-benefit analysis. We compare the costs, both adviser salary and student foregone earning, to the benefits. We compute the benefits focusing on the projected increase in earnings that comes from increased education. Since we do not observe college completion, we project out based on enrollment patterns identified by the National Student Clearinghouse and the College Board.

III. Analysis of Impacts

College Enrollment Outcomes

We start by estimating the impact on college enrollment outcomes. To do this, we estimate Equation 1 for the entire sample of students. Our central research questions from the initial proposal were as follows:

- 1) What is the program's impact on college access, college choice, and enrollment intensity relative to what would have happened in the absence of the program?
 - a) To what extent have Advising Corps' advisers increased the likelihood that students attend any college once they complete high school?
 - b) Have Advising Corps' advisers increased the likelihood that students attend two- or four-year colleges relative to what they would have done in the absence of any counseling?
 - c) Have Advising Corps' advisers increased the likelihood that students are engaged in full-time study in college?

Table 3.1 shows the basic enrollment results. While the intervention takes place at the school-cohort level, the analysis focuses on the average student experience across all CAC schools. Students with no NSC record are considered as non-attendees.

Students attending a CAC school are 2.8 percentage points more likely to ever attend college. They are about 1.7 percentage points more likely to enroll right after college. In these specifications, we control for correlation within the graduating cohort in that school. If we are

more expansive and control for correlation within schools over time, the standard errors are worse increasing from 0.013 to 0.017 and making the result insignificant.⁸

TABLE 3.1
Impacts of CAC Schools on Overall Enrollment

Independent Variables	Ever Enrolled in College	Enrolled in Fall After Senior Year
Treatment Effect	0.028*	0.017
	(0.013)	(0.016)
Constant	0.738***	0.585***
	(0.009)	(0.009)
School Fixed Effects	X	X
Standard Errors Clustered with Graduating Cohort at School	X	X
Sample Size	19,629	19,629

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

SOURCE: 2012-2017 NSC data

Independent Variables	Ever Enrolled in College	Enrolled in Fall After Senior Year
Treatment Effect	0.028*	0.017
	(0.013)	(0.016)
Constant	0.738***	0.585***
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School Fixed Effects	X	X
Standard Errors Clustered with Graduating Cohort at School	X	X
Sample Size	19,629	19,629

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

SOURCE: 2012-2017 NSC data

The estimated impacts are not surprising. In a randomized trial that CAC ran in Texas, the estimated impacts were similar both in magnitude and statistical significance when allowing for correlation across time within schools. As we mentioned above, CAC focuses on students who are low-income or first-generation. In the RCT in Texas, CAC had significant impacts on these groups. In Table 3.2, we show the estimated impacts for these groups.

⁸ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

TABLE 3.2

Impacts of CAC Schools on Ever Enrolling for Subsamples

Independent Variables	Free Reduced Lunch	African American	Hispanic	Female	Male
Treatment Effect	0.035*	0.012	0.049*	-0.009	0.058*
	(0.016)	(0.027)	(0.022)	(0.021)	(0.020)
Constant	0.823***	0.789***	0.805***	0.871***	0.789***
	(0.010)	(0.013)	(0.019)	(0.011)	(0.018)
School Fixed Effects	X	X	X	X	X
Standard Errors Clustered with Graduating Cohort at School	X	X	X	X	X
Sample Size	9826	5602	4302	7777	6608

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
 SOURCE: 2012-2017 NSC data

Here the results look much more consistent with the program model. Enrollment goes up for low-income students. While we see no impact on African-American enrollment, enrollment for Hispanic students goes up by nearly five percentage points. Additionally, while we see no impact for women, male enrollments go up by nearly six percentage points. Given that males are increasingly less likely to attend school than females, this impact is extremely strong. These impacts are statistically significant even when we use the most restrictive specifications on the standard errors. The results are also consistent with prior evidence on CAC. In the RCT in Texas, enrollments also increased for Hispanic and low-income students.

In terms of effect sizes, the impact on ever attending college (2.8 percentage points) corresponds to an effect size of 0.063 standard deviations. The impact on free/reduced lunch (3.5 percentage points) corresponds to an effect size of 0.092 standard deviations. The impacts on Hispanic and male students (4.9 and 5.8 percentage points respectively) correspond to effect sizes of 0.124 and 0.142 standard deviations.⁹ Notably, attaining effect sizes of this magnitude is in-line with other studies achieving “moderate evidence” ratings under the SIF program (Zhang & Sun, 2016); as Lipsey and Wilson (2001) conclude, in analyses of psychological, educational, and behavioral interventions, treatment effects of modest values—even $d=0.1$ to 0.2 —should not be interpreted as trivial.

Taken together, the results in Tables 3.1 and 3.2 provide promising evidence that CAC improved college enrollment for the very groups upon which they focus most.

In Tables 3.3 and 3.4, we report estimated impacts on four-year and two-year enrollment respectively. We measure these as enrollments that ever occurred. In these cases, none of the estimated impacts are statistically significant. The estimated impacts among free-reduced lunch students are 2.0 percentage points on four-year enrollment and 1.2 percentage points on two-

⁹ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

year enrollment. While these estimates do suggest impact, we lack statistical precision. Similarly, the estimated impacts on Hispanic students are 2.0 percentage points on four-year enrollment and 2.9 percentage points on two-year enrollment. Neither are significant, but when combined in Table 3.2, they are significant. The results suggest that increases in enrollment are somewhat evenly distributed across two- and four-year colleges. Had the results favored one set of schools, we likely would have had a more concrete story that CAC was improving enrollment in one type of school or another. The balanced results suggests that college enrollment is increasing across the board.

TABLE 3.3
Four-year college enrollment at any time

Independent Variables	All	Free Reduced Lunch	African American	Hispanic	Female	Male
Treatment Effect	0.018 (0.014)	0.020 (0.017)	-0.011 (0.022)	0.020 (0.024)	0.014 (0.017)	0.018 (0.022)
Constant	0.489*** (0.010)	0.566*** (0.010)	0.508*** (0.011)	0.501*** (0.015)	0.639*** (0.011)	0.559*** (0.013)
School Fixed Effects	X	X	X	X	X	X
Standard Errors Clustered with Graduating Cohort at School	X	X	X	X	X	X
Sample Size	19629	9826	5602	4302	7777	6608

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
SOURCE: 2012-2017 NSC data

TABLE 3.4
Two-year college enrollment at any time

Independent Variables	All	Free Reduced Lunch	African American	Hispanic	Female	Male
Treatment Effect	0.012 (0.011)	0.014 (0.018)	0.006 (0.021)	0.029 (0.026)	-0.029+ (0.017)	0.043+ (0.022)
Constant	0.330*** (0.008)	0.362*** (0.014)	0.379*** (0.012)	0.408*** (0.023)	0.331*** (0.015)	0.334*** (0.015)
School Fixed Effects	X	X	X	X	X	X
Standard Errors Clustered with Graduating Cohort at School	X	X	X	X	X	X
Sample Size	19629	9826	5602	4302	7777	6608

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
SOURCE: 2012-2017 NSC data

Our final estimates for this section focus on full-time enrollment. We estimated the impact of CAC on the likelihood that students enrolled full-time when they first started college. The

estimated impact is -0.006 with a standard error of 0.027. We find no estimated impacts on full-time enrollment.¹⁰

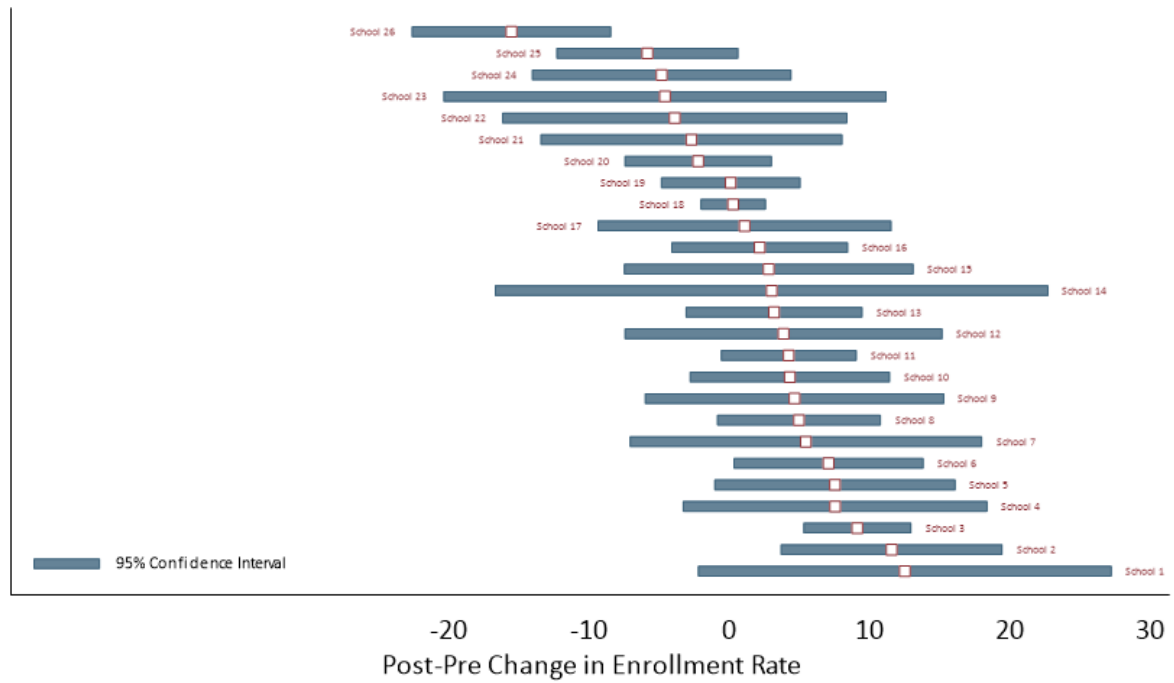
There are a number of reasons we may have understated the estimated impacts. First, we have included all available data. As we mentioned, seven schools have clearly had a different trend than the rest of Boston Public Schools. For example, School 26 was completely reconstituted over the period in question. The school closed, changed its focus to serve at-risk students, and later re-opened. Its college attendance rate was 68 percent among its 77 graduates in 2012. After its reconstitution, its population changed. Among its 16 graduates in 2017, only 44 percent of graduates attended college. This downward trend in the rate has nothing to do with CAC but would bias our estimated results downward. School 26 was closed in the 2017-18 school year. Second, as we have discussed, we have purposefully been conservative in the standard errors. We have allowed for correlation within the school over differing graduating cohorts. While in the short-run, this might be true, it is less likely that this is true when we consider the graduating classes that are far apart (e.g. 2011-12 and 2016-17).

Figure 3.1 breaks down the impacts school by school. Given the small sample sizes in each school, the 95 percent confidence intervals are somewhat generous. One take-away point is that the estimated effects are positive in all of the cases except three schools. The clear outlier in these is School 26 which we have already discussed. School 24 is also an alternative school and one for which we could make a case for exclusion.

¹⁰ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

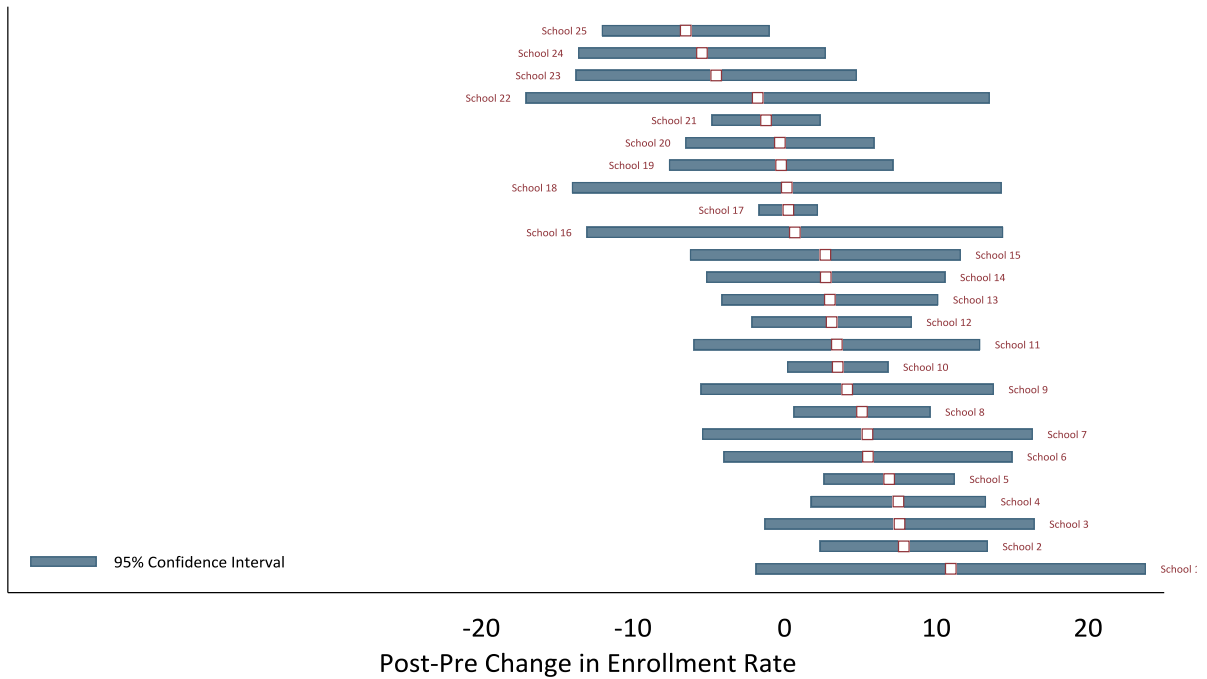
FIGURE 3.1

Change in Enrollment Rate Before and After Introduction of CAC in the School Enrolled in Any Institution Fall After HSG



SOURCE: 2012-2017 NSC data

Change in Enrollment Rate Before and After Introduction of CAC in the School Enrolled in Any Institution Fall After HSG



SOURCE: 2012-2017 NSC data

In sum, our findings suggest modest impacts of CAC on the entire school in Boston. Enrollment grows by 2.8 percentage points although this is sensitive to how we treat the standard errors. Perhaps the strongest finding is that the specific subgroups that CAC targets all experience increases in college enrollment after CAC. Students eligible for free/reduced price lunch, Hispanic students, and male students all experience significantly higher enrollment rates after CAC enters.¹¹

We do not find that the enrollment impacts are concentrated in four- or two-year schools. We see increases in both rates. From Figure 3.1, we see that most Boston high schools experience this increase in enrollment. We see no impact of CAC on the likelihood that students enroll full-time.

Intermediate Postsecondary Preparation Outcomes

The second research strand focused on the program’s impact on the pathways to college and college-going culture. There were five specific questions proposed by the original SEP that focused on student pathways, and a fifth question, that focused on the program’s

¹¹ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf

impact on student's postsecondary aspirations/attitudes and involvement in college preparation activities. The following section addresses these questions.

- a) What are the key milestones in CAC's students' academic careers which correlate most strongly with subsequent high school completion, college attendance, and outcomes in college?
- b) Do the milestones in CAC schools correlate with the national milestones identified in the academic literature?
- c) Are there significant patterns among CAC students where students "fall off" the path toward college attendance?
- d) What role, if any, does CAC's intervention play in identifying and correcting these "falling off" points?
- e) How has the program impacted perceptions of students' postsecondary aspirations, involvement in college preparation activities, and overall attitude toward college-going?

There are many barriers and challenges associated with applying to college such as selecting which colleges to apply to, preparing the necessary documents for application, and ultimately helping students advance to college. Students must complete a set of steps in order to attend college. These steps include such items as preparing for college, formulating expectations about college, preparing college applications, applying for college, taking college entrance exams, completing college financial aid forms, and selecting a college. If students complete these steps, they can attend college. Families and schools can help students accomplish these steps; however, despite their best efforts, some of the steps remain uncompleted. There are several potential reasons why these steps are uncompleted: students and their families may lack information; they may require assistance in understanding the complexity; schools may be overwhelmed or have ineffective outreach strategies; and so on. CAC inserts a full-time adviser to assist students with the entire process.

We have two sources of data for measuring milestones. First, the Boston Public Schools administered a student survey. Second, we tracked student interactions with advisers through GRACE, CAC's internal database which records student-adviser interactions. Each has their strength. The Boston Public Schools survey data are linked to the National Student Clearinghouse; the GRACE data are not. The Boston survey includes information about a few college preparation activities while the GRACE data include several variables that CAC considers predictive of college attendance. The BPS survey measures, among other things, college aspirations in terms of type and degree, alternative postsecondary aspirations, financial aid behaviors, school and family involvement in college, and involvement in various college preparation activities. EASE requested to add questions to the 2015 survey specifically addressing the involvement of students in various college preparation activities, such as the number of college visits a student went on, as well as identifying different college information sources utilized by students. Additionally, in 2016, EASE added questions addressing parent involvement in the college preparation process. As such, some of the measures only pertain to graduating classes 2015 and beyond.

Our first research question in this section is to identify the milestones that correlate most strongly with college outcomes. To do so, we estimate a simple regression model using the Boston data. We regress whether a student ever attended college against several activities that might prepare students for college. We run this regression with and without covariates which include race, gender, free/reduced lunch participation, and year and school fixed effects.

TABLE 3.5
Predictors of College Attendance

Independent Variables	Mean	Predictive Increase in Ever Attending College	Predict Increase in Ever Attending College
Asking for Information from Adviser/Counselor	0.89	0.092** (0.020)	0.085** (0.020)
Visited a College	0.94	0.091** (0.029)	0.076** (0.029)
Attended College Fair	0.83	0.057** (0.018)	0.049** (0.018)
Visited College Website	0.96	0.123** (0.038)	0.119** (0.037)
Took ACT/SAT	0.72	0.038** (0.014)	0.048** (0.014)
Attending Financial Aid Workshop	0.63	0.070** (0.014)	0.067** (0.014)
Read College Guidebook	0.54	-0.038** (0.014)	-0.033** (0.014)
Read College Rankings Magazine	0.57	-0.011 (0.015)	-0.020 (0.014)
Took Class for College Credit	0.69	0.153** (0.014)	0.134** (0.014)
Controls for Covariates		No	Yes

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
SOURCE: 2012-2017 NSC data

While these results are purely descriptive, they are not overly surprising. The largest predictors of college attendance are taking classes for college, visiting college websites, getting information from counselors and visiting campuses. In the case of college websites and visits, almost all of the students do this. Given that these high school campuses are located in Boston, there are a large number of colleges that students could have visited. Reading rankings or guidebooks are negatively correlated after controlling for other characteristics. While the correlations are low, these are activities that are not recognized nationally as leading to college enrollment.

Taking a college class, completing the college entrance exam and attending a financial aid workshop are three predictors which gain traction both among practitioners and in the academic literature. Klasik (2012), for example, cites college entrance exams and financial aid processes as being key barriers for many students. As such, our results are similar to the national patterns.

Our other source of data is the GRACE database. While we cannot track college enrollments of Boston students in GRACE, we can track predictors of college attendance for other CAC locations. In terms of key milestones correlated most strongly with college attendance, CAC identified eight Key Performance Indicators (KPIs), specifically whether a student took the SAT/ACT, completed a FAFSA, applied to college, visited a college or university or attended college/career related workshops in addition to adviser interactions. Using regression models to predict college attendance using these KPIs, we found that submitting a FAFSA, taking the SAT or ACT, submitting at least one college application and having a parent interaction or meeting increased the likelihood of attending college between 12 and 23 percent. Other KPIs, including completing a campus visit, having at least 1 one-on-one meeting with an advising and attending a college fair or meeting a college representative were less predictive of college attendance. Again, our results are in line with those of Klasik (2012).

Table 3.5 also gives us some idea about where there may be room for improvement. Given the unique environment in Boston, students have access to colleges, and a high fraction have visited a campus or otherwise gathered information about them. Among the items that are positively correlated with attendance, Boston students lag behind in students' attendance at financial aid workshops. Given the relative importance of affordability issues, this provides some hint as to where students might "fall off" the path.

Unfortunately, we do not have more extensive data on college preparations that are linked to college attendance. We are unable to examine the role of academic course taking (aside from dual enrolment). This is widely recognized (e.g. Klasik 2012) as a falling off point for students. It is one that CAC has little influence over; however the lack of it impedes us from fully exploring research question (d) above.

In order to measure the impact of CAC on students' postsecondary perceptions and involvement in college preparation activities, we conducted a difference-in-differences analysis comparing students who met with an adviser and those who did not meet with an adviser. It is important to note that this analysis is strictly descriptive as meeting with an adviser could be endogenous.

The following difference-in-differences results utilize survey data from the graduating classes of 2012-2018. As before, we compare student outcomes from before and after a school received a CAC adviser. Given the rapid expansion of the program and the continuous drop in comparable control schools, these comparisons are not between treatment and control schools, but between earlier survey outcomes prior to CAC's adoption and later outcomes following CAC's partnership with a school. As certain questions were added to the survey instrument as the study progressed, some of the findings have a smaller comparison group from which to draw. For example, the 2016 parental involvement questions can only look at results from the six schools that started working with CAC in the 2016-2017 academic year. Those six schools were the only schools that would have allowed us to compare pre-CAC and post-CAC responses for the survey items added

later. That being said, for the majority of survey items we were able to draw from a larger sample of schools because the items remained consistent across all years of the rollout.

Overall, we found that CAC has the most significant impact on the intermediate outcomes for students who indicated on the survey that they had met with the adviser. In contrast, we found few significant point estimates for all students or even particular student subgroups when comparing pre-CAC and post-CAC survey results. When we restrict the analysis to a comparison between students who indicated they met with the adviser versus those that had not, we find several significant increases in key advising areas. That being said, there are several precautions that need to be taken when interpreting these findings. First, the number of students who indicated that they had met with the adviser on the survey is quite small in any given year (approximately 5-10 percent of all students surveyed). We strongly suspect that this number far underestimates the actual number of students meeting with an adviser in a school, but that students most likely do not recognize the formal name of the advising program when filling out the survey. In studies conducted on CAC in other states, we have tried to address this issue by including the CAC adviser’s first and last name on the survey, but we were unable to make that addition to the Boston survey as it is an instrument created by the district.

In addition to the small sample of students meeting with the adviser, these students differ somewhat from the larger population of students surveyed. The composition of the group of students that met with the adviser are more likely to be male, Black, to receive free-and-reduced priced lunch, and also engaged in more college information related activities. Given that the survey does not allow us to look at a student’s grades or test scores, we can use these college-related behaviors as a proxy for academic ability. If we presume that taking a class for college credit and taking an SAT/ACT prep course are probably strongly related to academic ability, we find that students that met with the adviser are more likely to have done those things (Table 3.6).

TABLE 3.6
Differences in Characteristics Between Students who Met with and did not Meet with an Adviser at CAC Schools (N=11058)

Student Characteristic	Did Not Meet with CAC Adviser	Met with CAC Adviser
Female	0.537	0.463***
Receives free-and-reduced priced lunch	0.639	0.751***
Race: White	0.156	0.075***
Race: Black	0.369	0.500***
Ethnicity: Hispanic	0.324	0.331
Ethnicity: Asian	0.142	0.089***
Once or more: visited a college or university	0.930	0.956**
Once or more: attended college fair/info night	0.818	0.866**
Once or more: visited college website	0.963	0.972
Once or more: took act/sat prep course	0.711	0.840***
Once or more: attended financial aid workshop	0.607	0.767***
Once or more: read college guidebook	0.522	0.744***

Once or more: read college rankings magazine	0.566	0.725***
Once or more: took class for college credit	0.665	0.733***
First started thinking about postsecondary education before 10th grade	0.521	0.521

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

In the design of the evaluation, we were unable to create random variation in which students meet with advisers. For descriptive purposes, we show in Table 3.7 results where within CAC schools we measure the difference in intermediary outcomes depending on whether a student ever met with a CAC adviser. The interpretation is one of two things. First, it could be the causal impact of the adviser, and the results are in line with prior studies on the efficacy of CAC. Second, it could be that aspiring students either seek out CAC advisers or vice versa.

The results are quite positive. Students who meet with advisers are statistically more likely to apply for college admission (6.6%), plan on attending a four-year college (10.3%), plan on attending college full-time (6%), more likely to have received information about careers and technical education (CTE) (6.1%), more likely to receive a scholarship (11.1%), more likely to feel that school prepares them for college and careers (4.4%), and more likely to feel that the postsecondary information they received from their high school was helpful (9.1%). These are all significant indicators that students in CAC schools who meet with advisers have better outcomes than other students. In these analyses, we have fewer observations as a result of relying on survey data to measure who meets with an adviser, so these findings are particularly impressive given the reduction in power.

TABLE 3.7

Differences in College Outcomes for Students Meeting with an Adviser (CAC Schools)

Applied for admission to college or trade/voc school	0.0656** (0.021) N=5075
Plans to attend 4yr. in the fall	0.1035** (0.029) N=5054
Plans to attend 2yr. in the fall	-0.0717*** (0.019) N=5054
Plans to attend college full-time	0.0597* (0.027) N=5086
Receive info about CTE	0.0610** (0.021) N=5024
Receive a scholarship	0.111*** (0.038) N=4274

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
 NOTE: Standard errors in parentheses.
 SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

TABLE 3.8
 Differences in Perceptions of College Assistance for Students Meeting with an Adviser (CAC Schools)

Agree school getting me ready for college/career	0.0445** (0.015) N=5076
PSE info received from HS very helpful	0.0911** (0.026) N=4857

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
 NOTE: Standard errors in parentheses.
 SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

In addition to these postsecondary aspirational differences, Table 3.9 indicates that students who met with the adviser are statistically more likely to complete certain college preparation behaviors. Again, a limitation of the analysis is that we cannot determine whether these actions are a causal impact of having met with the adviser, but the results are quite positive. Students who met with the adviser are statistically more likely to have visited a college or university (3%), attended a college fair or information night (6%), taken an ACT or SAT preparation course (9%), attended a financial aid workshop (14%), read a college guidebook (16%) or college rankings magazine (17%), and taken a class for college credit (14%).

TABLE 3.9
 Differences in College Outcomes for Students Meeting with an Adviser (CAC Schools)

Visited a college or university	0.03* (0.013) N=5060
Attended a college fair/info night	0.06** (0.018) N=5042
Visited college website	0.004 (0.011) N=5039
Took act/sat prep course	0.09** (0.025) N=5043
Attended financial aid workshop	0.14*** (0.030) N=5046
Read college guidebook	0.16*** (0.029) N=5048
Read college rankings magazine	0.17***

	(0.032)
	N=5050
Took class for college credit	0.14***
	(0.042)
	N=5056

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

NOTE: Standard errors in parentheses.

SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

College-Going Culture Outcomes

- 1) What is the program's impact on school's college-going culture relative to what it would have been in the absence of the program?
 - a) To what extent are the advisers able to work to affect change beyond the triage done with seniors by working with freshmen, sophomores, and juniors?
 - b) How do Advising Corps advisers work with other school personnel and external providers on college preparation and advising activities?
 - c) In what ways do the advisers engage with teachers to promote college going?

Case Studies

As part of a three-year evaluation of CAC in Boston Public Schools, the main qualitative component includes annual site visits to four different Boston high schools. During year 1 of the evaluation, the research team conducted in depth site visits, consisting of individual and group interviews, at two high schools that partner with CAC and two that had not yet begun their partnership. Because of the increased expansion of CAC within Boston and the lack of optimal comparison school, year 2 of the evaluation consisted of three site visits at CAC partner schools and one visit at a non-program school. During the third and final year of site visits, the research team focused exclusively on visiting four CAC partner schools with a particular focus on how those schools help students prepare for non-four year postsecondary pathways.

In previous evaluations of CAC, the case studies have revealed the nature and importance of many aspects of the program, including: adviser-staff relationships, principal support, adviser accessibility, and near peer adviser characteristics. While previous evaluations have been helpful in identifying effective practices and existing challenges, the work has also raised questions that are pertinent to the achievement of programmatic goals, in particular, the goal of developing strong college going cultures in CAC schools.

Methods

The primary purpose of the case study portion of the study is to provide detailed insight and meaning to the quantitative measures of the college- going culture such as the proportion of students who submit college applications and aspire to attend a four--year university or two-

-year college, participation in college-prep activities such as college and financial aid informational workshops and college tours (measured with BPS Senior Exit Survey data), and the actual enrollment and persistence of students in college (measured by National Student Clearinghouse data). Qualitative case study data supplements the quantitative data by providing a more in-depth perspective of the interaction between the college advisers, school staff, and students; the values and priorities of various stakeholders (staff, students, families); and the extent to which collaboration and coordination of college preparation activities allow greater reach of the college-going culture of the school across grade levels and achievement.

Data collection consisted of daylong site visits at 12 BPS schools. Four new schools were visited each spring over a three-year period. We selected schools, when possible, based on variation in indicators of college going, as measured by student aspirations on the annual BPS Senior Exit Survey, as well as the school’s performance on state exams. The proposed schools were recruited by the CAC Program Director. In the case that a school declined participation, a backup school was then recruited. Each site visit targeted six types of informant: administrators, teachers, school counselors, parents (when possible), students, and the college adviser in the case of the program schools. Individual and group interviews ranged in length from 45--60 minutes. Interview protocols were developed by EASE for both the program and non-program schools based on information gleaned from site visits during previous evaluations. We focused on gathering information on how different stakeholders were involved in and perceived the college preparation process at their school, what variation, if any, existed in terms of how students were being served when it came to preparing for college, and how the school had been impacted by CAC. Each interview was recorded and transcribed after obtaining informed consent. Table 3.10 provides a breakdown of the number of interviews across stakeholders.

The research team analyzed the interviews by using a template for writing individual school reports developed from previous case study experience. School reports were compiled based on notes taken during the site visits, reflection memos, and the interview transcripts. The reports focused on an overview of a school’s background as it relates to college preparation, features of a school’s college-going culture, perceptions of CAC’s impact, and recommendations for strengthening a school’s approach to college preparation. Finally, overall recommendations and key-takeaways were provided annually for CAC based on themes identified across schools.

TABLE 3.10
Interview breakdown

Stakeholder	2015	2016	2017	Total
CAC Advisers	2	3	4	9
Teachers	16	20	16	52
Administrators	6	12	6	24
Guidance Counselors	7	12	8	27
External Program Staff	4	NA	8	12
Students	27	52	24	103
Parents	5	3	3	11

SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

Findings

a. Impact on School Culture

Across the schools we visited, we found that the idea of pushing students to attend college typically was an ingrained feature of the school's culture. More often than not students felt that college was a topic of conversation they heard regularly, and college preparation has become part of their high school curriculum to varying extents. Several schools incorporated applying to and receiving admission to a college as a requirement for graduation or required all seniors to take a college preparation course. Given that students apply to Boston high schools, it seems that certain schools are using that as an opportunity to stress to students to not enroll in their school if they are not interested in college. Across all of the schools, the majority of college preparation is geared towards upperclassmen, but underclassmen are still getting more exposure, such as through college visits, than we have seen at schools in different states. This more established and ingrained system of college preparation may in part be due to the high concentration of postsecondary institutions in the Boston area, which not only provide a motivational effect, but also extracurricular opportunities and school partnerships that allow students to be exposed to college in a multitude of ways. Students across schools had worked with different programs associated with local universities that provided them opportunities to take college courses or have a summer college experience while in high school. The concentration of resources already available within the school or waiting to be utilized can pose a challenge for schools with limited personnel to manage the partnerships and student connections.

While college is a prioritized aspect of these schools' missions, it is a transitioning message that is proving difficult for schools to navigate. That is, schools are dealing with the tension between pushing students towards elite universities, or four-year universities in general, and finding alternative postsecondary pathways for students. The former "College for All" mantra does not reflect the current needs and desires of some students. Many students are interested in alternative pathways, yet it can be difficult for schools to know how to think about and handle these types of students. For example, at one of the high school visits in year one, the discussion of options after high school reflected a hierarchy that placed attendance at a four--year college or university at the top. An administrator described two--year colleges as "lower ed," language that suggested a community college education would be a step down compared to "higher ed" four--year institutions. This sentiment contrasted with that of teachers at the school, who suggested that, despite the optimism of administrators, parents, and students, "maybe that not everybody ought to" attend a four--year college. They favored the idea of providing multiple options for students, particularly trade skills like plumbing that could provide a greater salary than many other career options, including some that require a college degree. One teacher stated, "There is a huge gap in the district in providing kids with opportunities to actually figure out what it is that you might do," a sentiment also suggested by other staff. It is clear that schools are still trying to find a balance between providing college and career readiness versus just college readiness. Schools are still in a transitional phase in terms of figuring out how to recognize and embrace a student interested in an alternative pathway. Many of the schools we

visited, regardless of their academic record and the extent that they push college as an objective, are dealing with this tension.

We found the CAC adviser to play an important role in the school, particularly in terms of helping to reach those students who may not follow a traditional postsecondary pathway, or who require additional assistance. Surprisingly, even within the small schools that we visited, we found that staff members struggle with finding the time to provide in depth, ongoing assistance to students going through the college application process. In particular, low-income, first-generation students typically need more hands-on support through the college application process because they do not have other means of getting assistance with FAFSA or writing a college essay. Moreover, students who may be struggling academically need even greater assistance in order to put together a strong application for college. For example, one of the CAC advisers was surprised to find that she had to teach students how to write a five-paragraph essay and be sure that they actually answered the questions posed on the Common Application. This type of assistance requires a great deal of one-on-one time with students, and also requires someone to continuously follow-up with students to ensure completion of tasks. Often counselors, or those primarily responsible for helping students through this process, have been unable to devote the amount of time they would like because of other responsibilities competing for their time. Staff at program schools praised the adviser for being able to continue with students where they would have had to leave off. The adviser provides an enhanced version of advising, that is otherwise not available to all students depending on the resources in their social network.

b. Adviser Impact Beyond Seniors

Similar to other case study findings, the CAC advisers in Boston spend the majority of their time working with upperclassmen, with limited outreach to freshmen and sophomores. Some advisers had greater success working with underclassmen at schools where there is already an established system in place for college outreach during those early grades. For example, at one of the schools we visited, underclassmen were given the opportunity to go on college visits and also attended a weekly seminar where counselors give presentations about college preparation topics, such as the importance of maintaining one's GPA or how to prepare financially for college. The CAC adviser at this school, although not a large part of her focus, had met with all of the underclassmen that we interviewed. For the most part, this interaction had occurred through the college visits, but one of the students we spoke with had worked closely with the adviser because her mom and teacher encouraged her to seek out guidance. The student recalled:

I know that she helps you like find your interest in things and then she helps you find colleges that have your interest. Because there's that day I came here and then my mom was just pushing me. She's like, "Go for college, like look." I was like, "Mom, it's too early." And you know how your mom is just like bothering, just like, "Fine, I guess." So my reading teacher told me about her, so I just came down here and I told her that my mom wanted me to find a college this early. She was like, "It's okay."

So she gave me a paper, she told me to write all my interests down, what I like and all. And then she's like – so she let me go home; that was like my homework for her, like write everything down what my interests are. And then the next day I came back, they had colleges that had the same interests.

This exchange is important because it is not uncommon for underclassmen to be told that it is too early for them to start looking into college, which ends up being a missed opportunity to help a student start solidifying their aspirations and investing in the process. While this example was not the norm across all schools, it highlights an important contribution that the CAC adviser can make with these younger students in terms of aspiration building. Typically, we found that prior to the senior year, the majority of the conversations around college seem to focus on test preparation rather than helping students think about what they would like to do in college and where they would like to attend. At the majority of schools, students and staff expressed that college preparation is heavily focused on juniors and seniors, which primarily seems to be due to a lack of time. For example, one adviser lamented not being able to work more with the lower grades because she found that the seniors took up so much of her time. At this particular school, the program planned on placing a second adviser to work exclusively with the lower grades. Overall, outreach beyond seniors continues to be a challenge at most schools.

c. Adviser's Role in Complementing the Efforts of the Professional Counseling Staff

An area where the CAC adviser has had the greatest impact in terms of a school's college-going culture is complementing or enhancing the efforts of the professional counseling staff. CAC advisers typically work quite closely with high school counselors to enact a college-going agenda, and we found counselors in Boston to be overwhelmingly positive about the advisers' contribution. In particular, as the job of a school counselor encapsulates multiple responsibilities from course registration, social and emotional counseling, and test-proctoring, there is often minimal time that can be devoted to college advising and preparation. Counselors in the schools visited during the study regularly reported being able to lean on the adviser for assistance in reaching more students at a more in depth level. For example, in terms of the impact that the college adviser has had on their job, one counselor remarked:

I think it's really just supported it. It's another person for students to go to with questions, particularly around the college process. And really just enhanced it. Like we can have a conversation with a student about choosing – about creating a college list and – but then do we have an hour to actually sit with them next – sit next to them and do the common app with them? We don't, unfortunately.

The idea that the adviser has “enhanced” the college preparation services provided by the counseling department is a good indication of the role that the adviser is playing in schools in terms of their college-going culture. As opposed to being the central figure, or the hub, of the college services, this particular adviser was part of a larger team dedicated to helping students. Because of that, the adviser had strong allies in the school and an established system with which to work. That being said, the college adviser does add knowledge and expertise to the current

system. For example, the counselors talked about how the adviser shares information and ideas with them that she learns through professional development training. They gave the example of having all of the teachers post signs of where they went to college during College Month as being her idea. Additionally, she shared new information regarding the FAFSA with them that they were able to incorporate with their discussions with students. The counselors felt that because of the adviser's presence in the school, more students were filling out college applications and the FAFSA.

In addition to providing more in-depth services and information, staff at another school talked about how the adviser was more successful at reaching certain students who were difficult for school counselors to reach. The staff member explained:

So a lot of what [the adviser] has done really, really well is looked at the kids that didn't come in because there are a lot of kids that are in guidance every other day, and then there's a whole group of kids, and most of them are boys, that just never go down there, never ask for help. And she's reached out, and we wouldn't reach those kids if we couldn't – we will tangentially. But getting them invested in the process and drawing them is what College Advising Corps let us do.

Along those same lines, the adviser felt she had been successful working with the “middle-of-the-road” students and opening their eyes to the possibility of going to a four-year school. A lot of students seem to only be aware of the most elite colleges and the community colleges but have minimal awareness of all of the other local institutions that are geared more for that middle-of-the-road student in terms of academics. Additionally, the counselors felt that since the adviser had come to the school students seemed to have more questions about college than before. One counselor remarked, “I just see them approaching her all the time, asking questions about their college list, about their financial aid . . . I mean the kids always have questions.”

A counselor at another school also remarked about the adviser's ability to reach students who were reluctant to meet with a school counselor. She remarked:

So I think [the adviser] does a really good job about reaching out to those kids that are not so willing to come to me a guidance counselor for whatever reason. So I've got a number of kids that I'll say, “I haven't been able to [unclear] this nut I can't crack, how about you meeting with them?” And she has done wonders.

Overall, school counselors described the advisers as valuable additions to college preparation efforts. Advisers were either viewed as enhancing existing efforts by allowing counselors to reach more students more efficiently, or they were seen as providing new information about and approaches to college preparation. As one counselor described during the year 3 visits, the CAC adviser is someone who “completely changed (her) life” and a “superstar” who has worked well at the school, making the current counselor's “life immeasurably easier” as well as providing a higher “level of support (to) the students . . . on every level.” This type of positive perception of CAC, and the advisers more specifically, was common across the schools.

d. Engaging with Teachers to Promote College-Going

A continued trend from the case studies is that the college adviser tends to have limited interaction with teachers. Part of the challenge with finding more opportunities to work with teachers is that classroom time tends to be fiercely protected in these schools, making classroom presentations a less viable option. Moreover, in some of these schools there tends to be some skepticism among teachers in terms of the accuracy of college information being shared with students, not just in terms of the adviser, but from counselors as well. At the same time, some of the teachers we spoke with seemed misinformed when it comes to their school's college-going rates.

Typically, the CAC adviser at any given school tends to work with a handful of teachers who are already invested in the college process. For example, one of the advisers explained:

They're definitely some, a couple teachers I think that expect more [of their students], which has pros and cons. But they try really, really hard to get them to do the [Boston Colleges], the [Boston Universities], the Northeasterns - go to a more well-known school. And those are mostly the teachers that contact me. Most of the other teachers don't communicate with me much. So I would say there's only a handful that are reaching out to me, asking if I can talk to their students, talking about students. But the ones that do, are trying to push them.

Teachers tended to reach out to the adviser if they had concerns about a particular student, or for logistical purposes related to college preparation events or tasks, such as test registration. Some teachers we spoke with who had not had any interaction with the CAC adviser tended to not see college preparation as something that they were directly involved in, which limited both their exposure to and awareness of their school's college preparation resources in general.

Parent Engagement Outcomes

1) How does the program encourage or facilitate parent involvement in college preparation?

Parent engagement continues to be a challenging area for CAC advisers because of time restraints and the difficulty of making contact with parents. In particular, with Boston high schools not necessarily being neighborhood schools, the geographic distribution of families throughout the city poses an even greater challenge to parent outreach and engagement. Throughout the study we experienced great difficulty in conducting interviews with parents to discuss their experience with the CAC program. Instead, we had to rely on discussions about parental involvement in the college process with the CAC adviser and school staff member, as well as results from the annual Senior Exit Survey.

The advisers and school staff members across schools discussed how parental outreach and engagement tends to be very limited. Even in cases where the adviser organized college-focused events for parents, attendance tended to be very low. One adviser commented:

So I organize a parent FAFSA night. But I think it's pretty hard to get our parents in the building. I think we had 15 parents or so for that. The registrar also has a role as a parent liaison, or something like that, and so she's organized guidance counselor breakfasts with parents for each grade level, so that's happened throughout the year. So we'll have maybe another ten to 15 parents come in for that. I think that's probably the hardest thing to actually make happen is getting parents to be involved or come to the school, at least.

In addition to the difficulty of getting parents to come to the school, the large immigrant and undocumented student populations at some of the schools often meant that parents were unfamiliar with the college application process. Advisers spoke of spending a great deal of time working closely with these students, in part, because their families could not provide assistance. Moreover, the advisers also explained that some of the parents of these students did not live in the country, which added another layer of difficulty in terms of getting the necessary information for filling out financial aid forms.

Given the difficulties we faced in finding parents to interview for the study, we used the Senior Exit Survey to assess parental involvement in the college process more generally. Specifically, in 2016 we added four questions to the survey to assess whether parents wanted their children to apply to college (as perceived by the student), as well as if the parents were involved in helping their children identify colleges to apply to and fill out college applications/FAFSA. Students were asked to rate these measures on a four-point Likert scale from strongly agree to strongly disagree, which was subsequently collapsed into a binary outcome for the analysis. In the following tables, the findings reflect the increased likelihood that a student agrees that their parent provided support or help.

Table 3.11 provides an overview of responses across all students in CAC schools, which provides a sense of the trends in Boston schools with regards to parental involvement in and support of college-going. These numbers represent any school that had the CAC program by 2018, so not all of the schools in the sample would have had the program since 2016. It is clear from the response rates that students are far more likely to perceive their parent as being supportive of their college aspirations than to perceive their parent as being involved in the process. On average, approximately 96 percent of students feels that their parent wants them to apply for college. In comparison, only 59 percent of students, on average, indicated that their parent helped them identify colleges to which to apply. This discrepancy in parental support and involvement is not terribly surprising among first-generation, low-income, and underrepresented minority students, who are largely being served by the CAC program. These students often speak about their parents encouraging them to attend college, yet they often are not familiar enough with the college application process to offer their children assistance.

TABLE 3.11

Proportion of Students that Agree or Strongly Agree with Statement about Parental Involvement & Support

Survey Measure	2016	2017	2018
My parent wants me to apply to college	0.958 N=2197	0.960 N=2592	0.952 N=2863
My parent helped me identify colleges to apply to	0.617 N=2195	0.511 N=2589	0.630 N=2860
My parent helped me with college applications	0.625 N=2191	0.526 N=2585	0.647 N=2860
My parent helped me fill out my FAFSA	0.633 N=2193	0.523 N=2584	0.634 N=2855

SOURCE: 2016-2018 Boston Public Schools Senior Exit Survey

The models outline in Table 3.12 use data from 2016, 2017 and 2018. The model compares outcomes pre and post-CAC across all students. As certain questions were added to the survey instrument as the study progressed, some of the findings have a smaller comparison group from which to draw. For example, the 2016 parental involvement questions can only look at results from the six schools that started working with CAC in the 2016-2017 academic year. Those six schools were the only schools that would have allowed us to compare pre-CAC and post-CAC responses for the survey items added later. That being said, for the majority of survey items we were able to draw from a larger sample of schools because the items remained consistent across all years of the rollout. Similar to other student survey measures, the outcomes across all students are not significant.

TABLE 3.12

Differences in Perception of Parental Involvement Across Students Pre and Post-CAC

Survey Measure	All Students
My parent wants me to apply to college	0.0201 (0.016) N=4789
My parent helped me identify colleges to apply to	-0.0386 (0.025) N=4784
My parent helped me with college applications	0.0393 (0.032) N=4776
My parent helped me fill out my FAFSA	-0.0128 (0.025) N=4777

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

NOTE: Standard errors clustered by school in parentheses.

NOTE: The outcomes are predicted by whether the school has CAC in the current year and controls for graduation year

SOURCE: 2016-2018 Boston Public Schools Senior Exit Survey

Table 3.13 compares the responses between students who did and did not report meeting with the CAC adviser. Although these measures do not speak directly to CAC's engagement with

parents, we are able to assess differences in perceived parental involvement between these students. While we did not find a significant difference between students in terms of whether they agreed that their parent wants them to apply to college, we did find positive and significant differences in terms of parental involvement in college preparation. Students who reported meeting with the adviser were more likely to indicate that their parent helped them identify colleges to apply to (11 percent), complete college applications (12 percent), and fill out the FAFSA (14 percent). Overall, these numbers do suggest that students who meet with the adviser tend to perceive their parents as more involved in the college process.

Similar to the survey results outlined in the previous section, however, these numbers are not meant to suggest that meeting with the CAC adviser has a causal impact on parental involvement, as it is possible that students who have more involved parents are more likely to meet with the CAC adviser. We have found in our case studies that students who tend to have more social capital with regards to college preparation often feel more comfortable seeking out assistance. It is also likely that students with involved parents may be encouraged to seek assistance from the adviser. Advisers often find it challenging to balance working with students who tend to already have support in the college process and helping those students who have fewer resources and are more apprehensive about seeking out assistance.

TABLE 3.13
Differences in Parental Involvement for Students Meeting with an Adviser (CAC Schools)

Survey Measure	All Students
My parent wants me to apply to college	-0.0027 (0.018) N=3899
My parent helped me identify colleges to apply to	0.1101** (0.036) N=3897
My parent helped me with college applications	0.1231** (0.034) N=3894
My parent helped me fill out my FAFSA	0.1387** (0.030) N=3893

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
NOTE: Standard errors in parentheses.
SOURCE: 2016-2018 Boston Public Schools Senior Exit Survey

Adviser Outcomes

- 1) What impact has participation in the program had on the advisers’ attitudes and life choices?

In addition to rigorously evaluating CAC’s impact on key student and school-level outcomes, the Corps also examines the impact this work has on the near-peer graduates serving as advisers in the Boston program. CAC collects data annually on the overall adviser experience and specifically,

the program's impact on advisers' post-baccalaureate and professional choices through a survey administered by EASE. The 2018 survey represents a 100 percent response rate for advisers serving as part of the Boston program in 2017-18.

In the annual Adviser Survey we aim to explore how advisers' experience in this role may have shaped their educational and professional goals. In 2018, ninety-four percent of CAC advisers reported that they felt like part of a national movement to increase the number of low-income, first-generation, and underrepresented students entering and completing college. Moreover, approximately 9 in 10 advisers reported feeling either somewhat satisfied or very satisfied with their overall experience as a CAC Adviser, and 52 percent reported that they would definitely recommend serving with CAC to others, with 42 percent indicating that they would probably do so. Taken together these results indicate relatively high levels of adviser-reported overall satisfaction with their participation in the Boston program.

When asked why, specifically, advisers might recommend serving with CAC to others, a selection of responses included:

"The experience has been very rewarding. I didn't know the extent of how much people appreciated my work until graduation, where everyone would clap loudly, and stand up. I have something that I can say is a treasure to keep from my experience which is a picture of me signed by students and staff."

"CAC has been a great stepping stone from college to my career, allows you to gain a variety of experiences in the professional world as well as giving you opportunities to reach out to a wide network of people in education umbrella."

"The work we do as advisers is incredibly important. I get to see the impact I make with my students every day and it is a truly rewarding job!"

Program Impact on Boston Program Advisers' Life Choices: Employment & Graduate School

In addition to gathering feedback on the adviser experience, we also use this survey as an opportunity to learn more about the ways in which the program has shaped advisers' educational and professional choices. Per self-reported demographic data collected, the CAC advisers are largely reflective of the populations they serve. Seventy-four percent of advisers identified as belonging to an underrepresented race or ethnicity and 65 percent reported Pell eligibility while in college. Furthermore, 48 percent of CAC-BU advisers serving in the 2017-18 year were first-generation college graduates, and for those indicating plans to attend graduate school, the majority intend to pursue study in education and the helping professions.

Just as the advisers demonstrate having a vested interest in preparing low-income, first generation, and underrepresented students to enter and complete postsecondary education, an integral part of CAC's model includes supporting advisers in becoming the next generation of education leaders.

The far-reaching impact of serving as a CAC-BU adviser can be evidenced perhaps, most readily, when program alumni are taken into account. Post-service, advisers were 33 percentage points more likely to indicate interest in college access or college counseling as a career as compared to pre-service. Excluding current graduate students, approximately, 70 percent of former CAC-BU advisers are currently employed in higher education, K-12, or youth-serving nonprofit organizations. Furthermore, the larger Boston community has clearly recognized the skills and competencies exiting CAC-BU advisers bring to the field. Since partnering in 2015, Boston University has hired eight CAC-BU alumni into various roles in career advising, admissions, financial assistance, and student advising. Boston Public Schools (BPS) has also hired six CAC-BU alumni, including three advisers who were hired into positions created for them by the school at which they served through CAC-BU. Many other advisers have been hired by partner organizations such as the Boston Private Industry Council, Summer Search, Bottom Line, and CollegeBound Dorchester, to name a few.

IV. Implementation Findings

A second, complementary strand of research examines CAC's program implementation. This information aids the program in determining how to improve current efforts. Studying the program's effects also serves the more practical element of assisting in the program's fundraising and expansion efforts. Our specific program implementation research questions include:

- 1) How did CAC's Boston expansion take place?
 - a. Did the treatment group receive services as planned? What kinds of services did the comparison group receive?
 - b. What are the characteristics of students who actually received services? To what extent did the program reach out to first generation college students?
 - c. What were the most important ways in which the model as implemented differed from the model as planned?
 - d. How much variation in implementation fidelity was there across sites? On what aspects of implementation was the greatest variation?
- 2) Was the program cost effective in that its long-run projected benefit provides a high return relative to the cost of the program?

CAC Expansion

The CAC rollout in Boston began in Spring 2014 at five high schools and quickly expanded to eventually serve 33 BPS schools and one non-BPS school by the end of the study. The treatment schools each received at least one CAC adviser during a given school year, with five schools being served by multiple advisers simultaneously during a portion of the study. Advisers at the treatment schools hold one-on-one or small group advising sessions with students (primarily

seniors), support students in registering for the ACT or SAT at least once, help seniors submit college applications and the FAFSA, and support seniors in gaining access to institutional aid and scholarship dollars. Table 4.1 provides an overview of the frequency of advising activities across the 34 CAC schools during the 2017-2018 academic year.

TABLE 4.1
Breakdown of Advising Activities in 2017-2018 Academic Year

Advising Activity	Frequency/Amount	No. of Seniors Impacted	Percent of Seniors Impacted
One-on-one meetings & group sessions	18,109 (one-on-one meetings)	3,660	89%
ACT/SAT registrations	3,121	3,121	76%
College applications submitted	22,007	3,229	79%
FAFSA submissions	2,673	2,673	63%

SOURCE: 2017-2018 Internal CAC GRACE data

NOTE: FAFSA submission numbers come from the US Department of Education and the denominator (number of students) is slightly higher from what is reported on GRACE (4,228 vs. 4,091)

Beyond working directly with students on various college preparation tasks, student outreach was a particularly important contribution that advisers bring to the counseling department of their respective high schools. For example, one adviser described her contribution as bringing a more systematic approach to student outreach. She explained that despite the school’s strong focus on college, the approach to college preparation was “unorganized and lacked structure.” There was no dedicated workshop or time to tell students about college. She commented, “A structure of how to access students” was missing. The adviser implemented this change by conducting workshops and having dedicated time for meetings and other partner organizations to share information.

With regards to the characteristics of students being served by the CAC adviser, all students in CAC schools were eligible for CAC services, and a typical CAC adviser keeps an “open door” policy in serving any student requesting help. Program directors charge the CAC advisers to emphasize meeting with low-income, underrepresented minorities, and other first generation students. We find that advisers are more likely to meet one-on-one with students in the program’s target population. Specifically, 81 percent of Black students (average of 5.2 meetings per students) and 74 percent of Hispanic students (average of 4.2 meetings per student) met individually with the adviser. Additionally, 81 percent of first-generation college students met individually with the adviser.¹² Although the data on first-generation student status is not complete across the whole BPS population, it is clear from internal CAC data that advisers are successful at targeting this subgroup.

Furthermore, according to case study interviews, staff and students recognized that the advisers had been able to reach students who might not have otherwise been reached when it comes to college preparation efforts. Typically, these are the students who are not as invested in going to college, or who are unsure whether they would like to go. Furthermore, these typically are

¹² First-generation status data only exists for a third of the student population.

students who are not as high achieving, so that they do not receive the same kind of access to resources, whether that be opportunities with outside programs and local colleges or personal discussions with teachers about college. These students tend to need more encouragement and personal attention, and they do not often receive that because they require a greater investment of time in an environment that is severely lacking in that commodity. The advisers, even within their first year, had already established themselves as someone who can work successfully with that type of student. For example, one student remarked that her school had not been as helpful to her through the college application process, and she praised the adviser for her work. She commented, “If she wasn’t here, I don’t even think I would have signed up for SAT.” The advisers are often able to encourage students more so than other staff members because they have the luxury of extra time, and the ability to establish a relationship with students who need to know that someone cares about them.

The main difference in implementation across BPS was not the actual services being provided by the program, but rather variation in the advisers’ presence in the schools. In particular, seven schools were served on a part-time basis for all or part of their partnership with the program. These schools were primarily served on a more limited basis because of their small size or their alternative education status, which reduced the number of students needing to be served by the adviser. Additionally, eight schools experienced a short gap in services during the course of the study because of advisers leaving the school prematurely. Often these advisers were quickly replaced, but in a few instances the school was without services for part of an academic year. Given that the program model is centered around having a full-time adviser in schools, this disruption of services or part-time model was the aspect of implementation with the greatest variation. In contrast, five of the schools were served by two of the advisers during part of the expansion because of their large size. The purpose of having a second adviser in these schools was to help in targeting lower-classmen as well as serving the seniors during the college application process.

Given the variation in implementation across schools, one of the important lessons learned from the study is the necessity to approach school partnerships with a certain level of flexibility and adaptiveness. That is, advisers, and the program more generally, are better able to serve the needs of their schools if they allow for deviations in the program model. If it is the case that certain schools can be adequately served by a part-time adviser because of the unique needs of their student populations, then that adviser is able to split their time between schools and ultimately reach more students.

Cost-Benefit Analysis

Finally, we attempt to provide a cost-benefit analysis. This appears in Table 4.2. Our point estimate on the effect of the treatment on two-year college enrollment is 2.6 percentage points. This suggests that 3.25 additional students per high school attended college as a result of CAC.

In the figure, we use estimates from the National Student Clearinghouse to project the average tenure of students in college. Based on their data, we expect that 1.5 of the 3.25 additional students per high school will receive only some college. If we use the College Board earnings for “some college,” it suggests that earnings are \$4,900 higher per year than they would have been with only a college diploma. We can similarly assign different levels of earnings to different rates of completion. The overall total projected earnings coming from increased education is \$27,452.

There are two large costs that we need to include. First, the average cost for the advisers is roughly \$59,000 per school which includes salary and overhead. Second, we need to include the foregone income from attending college. Using College Board data (on returns to high school) and the National Center for Education Statistics (wages of currently enrolled college students), we estimate that each student foregoes almost \$21,000 per year. This is likely an overestimate given the high unemployment rates of high school graduates who do not attend college in the years just after graduation, but it serves as a conservative estimate. As students drop-out of college and join the workforce, these foregone wages decline and students now start experiencing some of the returns to college. We estimate that community college tuition and fees balance out with state and federal need-based financial aid programs given that most of the impact occurs with free/reduced lunch students.

We can then compute the lifetime increase in earnings by combining the costs and benefits. If we assume some college completion, with a conservative 5 percent discount rate, we compute that average lifetime gains per school per year is near \$252,000.

We view these as conservative estimates for a variety of reasons. First, we have been liberal in estimating the foregone wages. High young adult unemployment and low entry wages should lower the foregone wages. Second, we have assumed that CAC does not affect time to degree, subsequent return to college, or other long-run outcomes. Finally, we also ignore any non-pecuniary benefits of college which would likely improve the returns for college (Oreopoulos & Petronijevic, 2013). If we lift any of these assumptions, the estimated return swells.

Even with our most conservative estimates, we find an internal rate of return of just over nine percent. We know of no other estimates of the return to college access programs. Our result is similar or better than the return to financial aid models. For example, Dynarski (2008) finds a nine percent rate of return for Georgia Hope. Other financial aid programs such as the Ohio College Opportunity Grant (Bettinger, 2015) suggest returns that are closer to one percent.

TABLE 4.2

Cost-Benefit Breakdown of CAC Boston Program

Variable	Values	Source
Estimated Impact on College Attendance	0.026	Table 7.1
Average Class Size (Senior class)	125	Estimated from BPS data
Total Students Impact Per School	3.3	Impact*Average Class Size
Increase in earnings for BA degree	\$24,600	College Board, Education Pays, 2016, Figure 2.1
Increase in earnings for associate degree	\$9,200	College Board, Education Pays, 2016, Figure 2.1
Increase in earnings for any college	\$4,900	College Board, Education Pays, 2016, Figure 2.1.
Proportion of completing an AA/AS conditional on 2-yr start	0.30	Shapiro et al., 2016 (Figure 12)
Proportion of completing a BA/BS conditional on 2-yr start	0.09	Shapiro et al., 2016
Proportion still enrolled	0.16	Shapiro et al., 2016
Total students who achieved AA/AS	1.0	Impact*Total Students
Total students who received a BA/BS	0.3	Impact*Total Students
Total students still enrolled	0.5	Impact*Total Students
Still enrolled at 2-year	0.2	Breaking up still enrolled using Degree ratio from Shapiro et al., 2016
Still enrolled at 4-year	0.3	Breaking up still enrolled using Degree ratio from Shapiro et al., 2016
Students who received any college	1.5	Remaining students
Average gain in earnings for students at school	\$25,452	Total students in each category multiplied by increase in earnings
Foregone earnings in any year	\$20,948	Difference between high school earnings and NCES estimate of earnings while enrolled
Total Gain in wages (5% discount rate)	\$252,522	PDV of earnings less foregone wages during college and cost of the program

V. Findings, Lessons Learned, Next Steps

There are a number of key conclusions based on the results:

Impact Findings:

- CAC improved college enrollment for students.
- CAC was especially effective among Hispanic, low-income, and male students.
- Enrollment impacts are not concentrated in four- or two-year schools.
- Students who reported meeting with the adviser were more likely to complete intermediate college preparation tasks.
- Case study data finds the CAC adviser helps to increase the depth and breadth of a school's college preparation efforts.
- CAC advisers report greater interest in careers related to college access work after their service.

Implementation Findings:

- CAC succeeds in targeting key student subgroups.
- Student who receive services see long-term economic benefits.

The most important finding is that CAC led to significant improvements in college enrollment among key student subgroups in Boston. This was particularly strong among Hispanic, low-income, and male students. Increases in overall college enrollment across all students was 2.8 percentage points. We also find evidence that compared to students who have not met with an CAC adviser, student who have met with an adviser are more likely to: aspire to go to college, participate in college-prep activities, and apply to college. In terms of the program's impact on college-going culture, the site visits indicate that program has been very well received by schools. Regardless of the challenges the advisers may face collaborating with school staff and reaching out to parents and lowerclassmen, school stakeholders confirm that the program enhances the college preparation services of the school. In particular, advisers are successful at broadening outreach to students who are not as likely to have discussions about college with other school staff, and they expose students to alternative postsecondary pathways that may provide a better academic fit.¹³

¹³ An updated version of the report, which includes data from the graduating class of 2018 analyzed in March 2018 can be found at: http://advisingcorps.org/wp-content/uploads/2019/04/ease-final-report-greenlight_3.8.19_final.pdf. Subsequent analysis reported in this update shows that overall enrollment increased by 3.0 percentage points. Increases for certain student populations were as follows: low-income students who qualified for free/reduced price lunch (3.9 percentage points), Hispanic students (5.0) percentage points), and male students (7.5 percentage points).

Finally, beyond the student and school impact, the program is having an important impact on the advisers who serve. Specifically, advisers are more likely to have an interest in college access or college counseling as a career post-service.

In terms of the program's implementation, CAC provided advising services as intended with high levels of interactions with key student subgroups. For example, during the 2017-2018, advisers met with 81 percent of Black students, 74 percent of Hispanic students, and 81 percent of first-generation college students. We also find evidence that the program more than pays for itself in terms of increased economic benefits to students. We performed an auxiliary analysis attempting to identify the cost effectiveness of the program. To do this, we computed the number of students implied by the point estimates from the impact study. We examined the likely careers of these students using national and state trends in retention, completion, and subsequent education and national data on the returns to schooling. We then compared this to the low cost of the program finding a return of about 9 percent under conservative assumptions.

For this study, we utilize sampling strategies and analytical techniques appropriate for a "moderate" level of evidence according to the guidelines from the SIF. We focus on a "moderate" level of evidence for two reasons. First, CAC is a "whole school" model. Randomizing within schools would have disrupted the underlying model. Additionally, there was insufficient power to randomize at the school level given that there were only 33 public high schools in Boston and that all participated in CAC. Second, the staggered expansion of CAC facilitated a quasi-experimental design. Specifically, our design is a variant of a single group design that includes an interrupted time series with a control group. CAC is pursuing other approaches to randomizing "dosage" among students within schools. They are piloting this project in Virginia hoping to increase the level of evidence substantiating their model.

There were two deviations from our initial research plan. One was delays in implementation. In the first year, advisers did not enter schools until late in the school year limiting the impact that they could have. The second is that we were unable to examine the role of academic course taking (aside from dual enrolment). This is widely recognized (e.g. Klasik 2012) as a falling off point for students. It is one that CAC has little influence over; however, the lack of it impedes us from fully exploring all aspects of the program's impact on students' pathways to college.

There were no significant changes to the budget to report. The timeline of the case studies changed as the first year of site visits took place in Spring 2015 and the final year of visits was in Spring 2017. No site visits were conducted during the 2017-2018 academic year.

Over the course of the grant, there were key changes to evaluation staff as well as program staff at CAC. The project manager for EASE, Dr. Rie Kijima, left the project in 2015, and was replaced by Dr. Jesse Foster-Hedrick for the remainder of the study. In 2014, College Advising Corps brought on a Director of Impact and Evaluation, Sarah Shah. This internal role was seen as an important step for CAC to develop more internal capacity for evaluation and research as they continued to grow.

Many lessons were learned through this process of expansion across the Boston school district, both in terms of future evaluations and programmatic implementation. With regard to future evaluations, we learned that relying on survey data provided by a school district brings both advantages and disadvantages. On the one hand, the survey coverage exceeds what an outside organization is typically able to achieve, which provides a better assessment of overall trends. At the same time, the lack of control over survey customization posed a considerable challenge in terms of assessing differences between students who did and did not meet with an adviser. In future evaluations, it will be important to ensure that the program is able to gain a more accurate measure of interaction across all students so that comparisons in intermediate college preparation tasks can be better understood.

In addition to lessons for future evaluations, the complete rollout of CAC across Boston schools provides its own lessons for future expansion. Given the variation in implementation across schools, one of the important lessons learned from the study is the necessity to approach school partnerships with a certain level of flexibility and adaptiveness. That is, advisers, and the program more generally, are better able to serve the needs of their schools if they allow for deviations in the program model. If it is the case that certain schools can be adequately served by a part-time adviser because of the unique needs of their student populations, then that adviser is able to split their time between schools and ultimately reach more students.

Additionally, by analyzing the annual Adviser Survey, CAC learned that all Boston advisers desired more exposure to alternative postsecondary pathway options. The CAC 2016 Summer Training Institute incorporated new presenters to address this issue and build on advisers' understanding of the numerous opportunities in Boston outside the traditional four-year or even two-year college landscape. CAC staff took campus trips to sites like Endicott Boston, New England Center for Arts & Technology, Match Beyond, The Jeremiah Program, JVS (Jewish Vocational Services) and Boston Chinatown Neighborhood Center to connect with staff and see sites. CAC staff created new ways to track these postsecondary options in the GRACE student tracker tool to ensure that these data points are captured and analyzed. CAC remains committed to increasing its knowledge and capacity to propel all students to postsecondary opportunities. CAC's leading work in Boston in the alternative education space is contributing to the learning of CAC nationally, creating a ripple effect beyond Boston.

Finally, as a program, CAC continues to expand its services to new schools and states, as well as grow its internal evaluation staff and capabilities. CAC continues to partner with EASE and other evaluators to identify best practices and other ways to strengthen its program. Specifically, CAC will continue to assess its impact in Boston upon receipt of the 2018 NSC data and will continue to explore new avenues and partnerships that allow them to have an even stronger impact on college enrollment. For example, CAC collaborated with four other college access partners under the Boston WINS Initiative funded by the State Street Foundation. The goals of the initiative were to improve college enrollment and persistence among Boston students by having organization work more collaboratively in offering services. Beyond their work in Boston, CAC continues to conduct research on innovative ways to encourage more students to attend college, such as

interventions that increase parental involvement and help students with the college match and fit process.

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VII. Appendix

Study Logistics Update

Protection of Human Subjects

Much of the data used for the evaluation of program impact and implementation is already gathered by the College Advising Corps and BPS, with the management assistance of EASE. Such data collection is considered programmatic activity and is not subject to Institutional Review Board approval. The research team conducted the analyses of program impact on de-identified data supplied by BPS. Our protocol for the collection of case study data was approved by the Stanford IRB in April 2011 and remains valid as the that effort is expanded to new CAC sites.

Timeline and Budget

There were no significant changes to the budget to report. The timeline of the case studies changed as the first year of site visits took place in Spring 2015 and the final year of visits was in Spring 2017. No site visits were conducted during the 2017-2018 academic year.

Evaluation and Program Staff Involvement

Over the course of the grant, there were key changes to evaluation staff as well as program staff at CAC. The project manager for EASE, Dr. Rie Kijima, left the project in 2015, and was replaced by Dr. Jesse Foster-Hedrick for the remainder of the study. In 2014, College Advising Corps brought on a Director of Impact and Evaluation, Sarah Shah. This internal role was seen as an important step for CAC to develop more internal capacity for evaluation and research as they continued to grow.

Additional Tables and Research Instruments

Student Survey Instrument and Results

The following difference-in-differences results utilize survey data from the graduating classes of 2012-2018, which allows us to compare student outcomes from before and after a school received a CAC adviser. Given the rapid expansion of the program and the continuous drop in comparable control schools, these comparisons are not between treatment and control schools, but between earlier survey outcomes prior to CAC's adoption and later outcomes following CAC's partnership with a school. Table 7.1 looks at the impact the CAC program had on various groups of students' intermediate postsecondary outcomes. These measures are not restricted to students who met with the adviser.

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TABLE 7.1

Intermediate Postsecondary Outcomes by CACB Program Status - Separate by Subgroups (Student-Level Analyses, Linear Probability Models)

	All Students		FRPL Students		Not FRPL Students		White Students		Black Students		Hispanic Students		Female Students		Male Students	
Applied to Postsecondary School																
CACB School This Year	-0.0037		0.0034		-0.0156		0.0062		0.0233		-0.009		-0.0038		0.0004	
	(0.020)		(0.021)		(0.028)		(0.031)		(0.026)		(0.033)		(0.019)		(0.022)	
Constant	0.9298	***	0.9213	***	0.949	***	0.9616	***	0.9241	***	0.9038	***	0.9553	***	0.8961	***
	(0.012)		(0.011)		(0.017)		(0.019)		(0.009)		(0.015)		(0.010)		(0.014)	
N	14286		9760		4526		2246		5575		4261		7730		6556	
Plans to Attend a Four Year School in the Fall																
CACB School This Year	0.0108		0.0001		0.0487	*	0.021		0.0154		0.0205		0.0115		0.0117	
	(0.015)		(0.020)		(0.021)		(0.034)		(0.020)		(0.028)		(0.017)		(0.023)	
Constant	0.7174	***	0.6916	***	0.7708	***	0.8271	***	0.6672	***	0.6383	***	0.7561	***	0.6659	***
	(0.011)		(0.013)		(0.012)		(0.012)		(0.015)		(0.020)		(0.014)		(0.014)	
N	14279		9764		4515		2251		5561		4261		7726		6553	
Plans to Attend Full Time in The Fall																
CACB School This Year	0.002		0.009		-0.0032		0.0133		-0.0021		0.0331		-0.0114		0.0201	
	(0.018)		(0.021)		(0.024)		(0.038)		(0.027)		(0.033)		(0.019)		(0.027)	
Constant	0.8333	***	0.8119	***	0.8796	***	0.8936	***	0.806	***	0.7878	***	0.8623	***	0.7944	***
	(0.015)		(0.014)		(0.019)		(0.014)		(0.014)		(0.022)		(0.014)		(0.020)	
N	14325		9788		4537		2250		5600		4268		7756		6569	
Plans to Attend Public School in the Fall																
CACB School This Year	0.0257	+	0.0148		0.0456	*	-0.0331		0.0746	*	0.0153		0.0093		0.0405	+
	(0.014)		(0.017)		(0.021)		(0.046)		(0.029)		(0.035)		(0.020)		(0.021)	
Constant	0.6088	***	0.6245	***	0.5765	***	0.5271	***	0.6486	***	0.6673	***	0.599	***	0.6195	***
	(0.011)		(0.015)		(0.013)		(0.017)		(0.015)		(0.021)		(0.012)		(0.018)	
N	13489		9165		4324		2179		5224		3958		7409		6080	
Plans to Attend Private School in the Fall																
CACB School This Year	0.0079		0.0073		0.0044		0.1108	**	-0.0492		0.0078		0.0211		-0.0067	

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	(0.019)		(0.023)		(0.021)		(0.036)		(0.030)		(0.041)		(0.017)		(0.029)
Constant	0.3307 ***	0.3063 ***	0.3832 ***	0.4267 ***	0.2766 ***	0.2815 ***	0.3542 ***	0.3009 ***							
	(0.009)	(0.013)	(0.008)	(0.016)	(0.014)	(0.012)	(0.013)	(0.012)							
N	13489	9165	4324	2179	5224	3958	7409	6080							
Plans to Attend First Choice School (if Plans to Attend Any)															
CACB School This Year	-0.0412	-0.0457	-0.0193	0.0353	-0.044	-0.0655 +	-0.0651 +	-0.0159							
	(0.028)	(0.030)	(0.040)	(0.041)	(0.034)	(0.035)	(0.035)	(0.028)							
Constant	0.5394 ***	0.5494 ***	0.5133 ***	0.5358 ***	0.551 ***	0.5452 ***	0.4931 ***	0.6007 ***							
	(0.010)	(0.014)	(0.015)	(0.025)	(0.014)	(0.019)	(0.010)	(0.015)							
N	12416	8409	4007	1989	4863	3611	6879	5537							
Agrees that High School Prepared Me for College and Careers															
CACB School This Year	-0.0009	0.0018	0.008	-0.0467	0.0043	0.0204	0.0056	-0.0071							
	(0.022)	(0.020)	(0.039)	(0.063)	(0.023)	(0.027)	(0.028)	(0.021)							
Constant	0.8783 ***	0.8731 ***	0.8887 ***	0.9027 ***	0.8657 ***	0.8694 ***	0.8816 ***	0.8738 ***							
	(0.008)	(0.009)	(0.013)	(0.011)	(0.014)	(0.009)	(0.009)	(0.012)							
N	14363	9818	4545	2252	5613	4285	7769	6594							
Received Financial Aid (if Planning on PSE)															
CACB School This Year	-0.0056	-0.0043	-0.0215	0.0122	-0.0033	0.0061	0.0008	-0.012							
	(0.020)	(0.021)	(0.028)	(0.040)	(0.035)	(0.032)	(0.021)	(0.027)							
Constant	0.8229 ***	0.8523 ***	0.7516 ***	0.7761 ***	0.8105 ***	0.814 ***	0.839 ***	0.8035 ***							
	(0.007)	(0.008)	(0.017)	(0.008)	(0.012)	(0.013)	(0.013)	(0.013)							
N	10275	7001	3274	1643	3978	2989	5669	4606							
Received Scholarships (if Planning on PSE)															
CACB School This Year	0.0043	0.0076	-0.0178	-0.0358	-0.0241	0.0205	0.0074	0.0043							
	(0.028)	(0.030)	(0.037)	(0.060)	(0.030)	(0.033)	(0.030)	(0.033)							
Constant	0.5307 ***	0.4966 ***	0.597 ***	0.6868 ***	0.4238 ***	0.4856 ***	0.5527 ***	0.5029 ***							
	(0.015)	(0.013)	(0.028)	(0.019)	(0.015)	(0.018)	(0.018)	(0.021)							
N	10221	6893	3328	1650	3917	3043	5592	4629							
School Fixed Effects	X	X	X	X	X	X	X	X							

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Standard Errors Clustered by School	X		X		X		X		X		X		X		
-------------------------------------	---	--	---	--	---	--	---	--	---	--	---	--	---	--	--

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

NOTE: Standard errors in parentheses.

NOTE: FRPL status not provided in 2018

SOURCE: 2012-2018 Boston Public Schools Senior Exit Survey

Survey Instrument

Senior Exit Survey

In an effort to understand your high school experience and future aspirations for the purposes of continuous improvement, the Boston Public Schools wants your feedback! The information you enter in this survey will be used only for the purposes of understanding our students' high school experiences and future aspirations.

Your thoughts and feedback are very important to us and will be used to help improve the high school experiences of future Boston Public Schools students. This survey includes components of the general BPS Student Climate Survey, so for this reason, 12th grade students are exempt from the general BPS Student Climate Survey this year.

Please answer each question to the best of your knowledge. If a question does not apply to you, please leave it blank or select Not Applicable, where available.

Thank you for taking the time to provide us with your thoughts!

Student Information

Please enter your six-digit student ID.

Please write your first and last name.

High School Experience

1. Please rate the quality of instruction provided by your high school in the following areas	Unsatisfactory	Satisfactory	Excellent	Wasn't Taught
Verbal presentation of information and findings so that listeners follow organization and line of reasoning	1	2	3	N/A
Attentive listening for the purpose of building on the ideas of others while adding original thought	1	2	3	N/A
Evaluating the arguments of non-fiction and literature	1	2	3	N/A
Writing for a variety of purposes, while considering audience, task, and purpose	1	2	3	N/A
Using technology to conduct research, gather information, and communicate	1	2	3	N/A
Reason abstractly and creatively	1	2	3	N/A
Solve problems by making sense of problems and persevering to completion	1	2	3	N/A

2. Think about your years in high school, including this year. For how many years did you participate in the following activities?	None	1 year	2 years	3 years	All 4 years
Athletics	0	1	2	3	4
Student Government	0	1	2	3	4
Band/Chorus/Orchestra	0	1	2	3	4
Honor Society	0	1	2	3	4
Visual Arts	0	1	2	3	4
Theater/Drama/Dance	0	1	2	3	4
School clubs (i.e. school newspaper, yearbook)	0	1	2	3	4
Debate League	0	1	2	3	4
Model UN	0	1	2	3	4
Non-School Clubs (i.e. scouts)	0	1	2	3	4
ROTC	0	1	2	3	4
Career and Technical Education Programs	0	1	2	3	4
Unpaid Job (i.e. volunteer position)	0	1	2	3	4
Paid Job	0	1	2	3	4

3. If you worked for pay during your senior year, how many hours a week on average did you work?
1. 1-10 hours
 2. 11-20 hours

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3. 21-30 hours
 4. 31 hours or more
 5. Not Applicable
4. If you worked as a volunteer during your senior year (unpaid work), how many hours a week on average did you volunteer?
1. 1-10 hours
 2. 11-20 hours
 3. 21-30 hours
 4. 31 hours or more
 5. Not Applicable
5. Which of the following work-based or community service experiences did you participate in during your high school career?
1. Job shadowing
 2. Internship/Practicum
 3. Community service/volunteer work
 4. Not applicable
6. How helpful has your work-based or community service experience been in helping you formulate your future career plans?
1. Very helpful
 2. Somewhat helpful
 3. Not helpful
 4. I did not participate in work-based or community service experiences

School Climate

7. Please rate how much you agree with the following statements:	Strongly Disagree	Disagree	Agree	Strongly Agree
My school is a good place for me to learn.	1	2	3	4
My school is getting me ready for college and/or careers.	1	2	3	4
The things I learn in school are valuable to me.	1	2	3	4
The classes I am taking will be useful in the future.	1	2	3	4
I would recommend this school to my friends.	1	2	3	4
I am proud to be a student at this school.	1	2	3	4

Information about Careers and Postsecondary Education

8. Please think about your conversations about your postsecondary plans. In which grade did you do the following?	Never	6 th or earlier	7 th	8 th	9 th	10 th	11 th	12 th
Talk with your parent(s)/guardian(s) about what to do after high school.	0	1	2	3	4	5	6	7
First receive information about careers.	0	1	2	3	4	5	6	7
First receive information about postsecondary education.	0	1	2	3	4	5	6	7

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First start thinking about college.	0	1	2	3	4	5	6	7
First take a college entrance exam (for example the SAT or ACT)	0	1	2	3	4	5	6	7
How early do you think you would have benefited from receiving information about careers and postsecondary education?	0	1	2	3	4	5	6	7

9. Did you receive career and postsecondary information from any of the following sources?

	Yes	No
Middle school (grades 6 to 8) counselor(s)/teacher(s)?	1	0
High school counselor(s)	1	0
High school teacher (s)	1	0
Colleges (via mail, college fairs, etc.)	1	0
Parent (s)/guardian(s)	1	0
Local businesses or an organization other than the BPS	1	0
On your own (from libraries, websites, college visits, etc.)	1	0
The military	1	0
Personally-funded college advisor	1	0
A sibling	1	0
Another relative, family friend, mentor	1	0

10. How helpful was the career and postsecondary education information you received from your high school?

1. Very helpful
2. Somewhat helpful
3. Not helpful
4. Did not receive any information

11. Would more one-on-one advising about career and postsecondary plans from your high school have been more helpful?

1. Yes
2. No
3. Not applicable

12. How well did your high school prepare you for the following?

	Not Well	Somewhat Well	Very Well
Employment	1	2	3
Further Education	1	2	3
Personal Life	1	2	3

13. Please rate how much you agree with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
My parent/guardian wants me to apply to college	1	2	3	4
My parent/guardian helped me identify colleges to apply to	1	2	3	4

My parents/guardian helped me to complete my college applications	1	2	3	4
My parent/guardian helped me fill out my FAFSA	1	2	3	4

14. What is the highest level of education you plan to complete?
1. High School Diploma
 2. Associate's Degree (2 years)
 3. Bachelor's Degree (4 years)
 4. Master's Degree or higher
 5. Undecided
15. Have you applied for admission to a college, university, or business, trade, or vocational school?
1. Yes
 2. No
16. If you are planning to continue your education this fall, what are you most likely to do?
1. Attend a 4-year public college
 2. Attend a 2-year public college
 3. Attend a 4-year private college
 4. Attend a 2-year private college
 5. Attend some other postsecondary program (e.g. trade school)
 6. Undecided
 7. Not applicable
17. If you are planning to continue your education this fall, will you be attending:
1. Full-time
 2. Part-time
 3. Undecided
 4. Not applicable
18. Please select the college you are planning to attend this fall from the drop down menu. If the school you are attending is not listed please select "Other college/university (not listed)", then write the name of the school in the space provided below. If you are NOT attending school in the fall, please select "Not attending school in the fall".
- [The survey lists the top 76 schools from previous surveys.]**
19. Please select the major you are planning to study this fall from the drop down menu. If the major you intend to pursue is not listed please select "Other major (not listed)", then write your intended major in the space provided below.
- [The survey lists the top 31 majors from previous surveys.]**
20. If you are planning to attend school, did you receive financial aid?
1. Yes
 2. No
 3. Not Applicable
21. If you are planning to attend school, did you receive a scholarship?

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1. Yes
 2. No
 3. Not Applicable
22. Are you planning to attend your first-choice school?
1. Yes
 2. No
 3. Not applicable
23. If you are NOT planning to attend your first-choice school, what was the most important reason for why you are not?
1. It is too far from home
 2. It is too expensive
 3. I did not receive enough financial aid
 4. I did not get accepted
 5. Not applicable
24. If you decided not to continue your education this fall, please select the most important reason why.
1. I need a break from school
 2. I can't afford to continue my education
 3. Not applicable
- Other: _____ **[there should be a row of squares for students to input text]**
25. If you are NOT continuing your education this fall, what do you plan to do?
1. Work
 2. Military- Active Duty
 3. Military- Reserves
 4. Other (e.g., travel, start a family)
 5. Plans Unknown
 6. Not applicable
26. If you are joining the military, which branch are you joining?
1. Air Force
 2. Army
 3. Navy
 4. Coast Guard
 5. Marines
 6. Other
 7. Not Applicable
27. What are your plans for the summer after high school graduation?
1. Working
 2. Volunteering
 3. Summer School/Academic Program
 4. Not Sure
 5. Other
 6. Please provide further details

28. If you plan to work this summer, do you already have a summer job lined up after graduation from high school?
1. Yes, a full-time job
 2. Yes, a part-time job
 3. No
 4. Undecided
29. If you have a summer job lined up after graduation, how did you get your job?
1. Boston Center for Youth and Families/ SuccessLink
 2. ABCD
 3. Boston Private Industry Council (PIC)
 4. On my own
 5. Other: _____
30. If you have a summer job after graduation, please enter the following information.
- Company Name: _____
Your Job Title: _____
Street Address: _____
City, State, Zip Code: _____
Average Hours per Week: _____
Approximate Start Date: _____
Approximate End Date: _____
31. If you have a job after graduation, what will your hourly salary be (how much will you make per hour, including any tips or bonuses)? If you do not have a job, please write N/A.
1. Less than \$11/hr
 2. \$11/hr (Minimum Wage)
 3. \$11.01/hr to \$13/hr
 4. \$13.01/hr to \$15/hr
 5. More than \$15/hr
 6. Summer Stipend (specify amount in 'other' section)
 7. Other: _____
32. If you are working this summer, do you anticipate staying at this same job into the fall?
1. Yes
 2. No
 3. Unsure
33. If you do not have a job this summer, are you interested in finding a job?
1. Yes
 2. No
 3. I don't know

Information about Career and Technical Education

34. Did you obtain Career and Technical Education (e.g., vocational, technical) during your time at a BPS high school?

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1. Yes
2. No

35. When were you first informed about CTE opportunities at your school or in the district?"

1. 7th grade or earlier
2. 8th grade
3. 9th grade
4. 10th grade or higher
5. Not applicable

36. In the next six months, will you be working or studying in a field related to your Career and Technical Education program? Only select "Not Applicable" if you did not participate in Career and Technical Education programs.

1. Yes
2. No
3. Not applicable

37. My Career and Technical Education will provide me with the support I need to transition from high school to a career.

1. Yes
2. No
3. Not Applicable

38. My Career and Technical Education will help me find and go on to postsecondary education or training.

1. Yes
2. No
3. Not Applicable

Information about Postsecondary Preparation

39. Since entering high school, how many times have you done the following?

	Never	1-2 times	3-4 times	5-10 times	More than 10 times
Visited a college or university	0	1	2	3	4
Attended a college information workshop or college night/fair	0	1	2	3	4
Viewed a college website	0	1	2	3	4
Took an ACT/SAT prep course	0	1	2	3	4
Attended a financial aid workshop	0	1	2	3	4
Read a college guidebook (e.g. Fiske, Barron's)	0	1	2	3	4
Read college rankings magazine (e.g. US News, Money)	0	1	2	3	4
Took a class for college-level credit (AP, IB, Dual Enrollment)	0	1	2	3	4

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40. How familiar are you with the following college advising programs	Not at all familiar	Heard of them but have not interacted with them	Interacted with them on a limited basis	Interacted with the frequently
American Student Assistance (ASA) College Planning Center	1	2	3	4
The BASE	1	2	3	4
Boston Scholar Athletes	1	2	3	4
Bottom Line	1	2	3	4
BUILD-Boston	1	2	3	4
College Advising Corps at Boston University (CACBU)	1	2	3	4
College Bound Dorchester	1	2	3	4
Freedom House	1	2	3	4
GEAR Up	1	2	3	4
Higher Education Resource Center (HERC)	1	2	3	4
Hyde Square Task Force Gear Up	1	2	3	4
Let's Get Ready	1	2	3	4
Private Industry Council (PIC)	1	2	3	4
Sociedad Latina	1	2	3	4
Squashbusters	1	2	3	4
Steppingstone Foundation	1	2	3	4
Success Boston	1	2	3	4
Talent Search (TRIO)	1	2	3	4
Tenacity	1	2	3	4
uAspire (Access)	1	2	3	4
Upward Bound	1	2	3	4
Urban Scholars	1	2	3	4
West End House Boys and Girls Club	1	2	3	4
YMCA Achievers	1	2	3	4

Contact Information

41. Please provide the following contact information:

a. Home Phone Number: _____ Cell Phone Number: _____

b. Current Address:

c. Alternative address (i.e. relative, friend, employer who can contact you if the school department cannot contact you directly):

d. Please provide a personal email address that you plan to use over the next year (for example a Gmail or Yahoo email account):

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Survey Code	College Name
101	American International College
102	Anna Maria College
103	Assumption College
104	Bay State College
105	Becker College
106	Benjamin Franklin Institute of Technology
107	Bentley University
108	Berklee College of Music
109	Boston College
110	Boston University
111	Bridgewater State University
112	Bunker Hill Community College
113	Cambridge College
114	Centre College
115	Clark University
116	College of the Holy Cross
117	Curry College
118	Dartmouth College
119	Dean College
120	Denison University
121	Eastern Nazarene College
122	Emerson College
123	Emmanuel College
124	Fairfield University
125	Fisher College
126	Fitchburg State University
127	Framingham State University
128	George Washington University
129	Gordon College
130	Hamilton College
131	Hampton University
132	Harvard College
133	Howard University
134	Johnson and Wales University
135	Lasell College
136	Le Cordon Bleu College of Culinary Arts in Boston
137	Lesley University
138	Massachusetts Bay Community College

139	Massachusetts College of Art and Design
Survey Code	College Name
140	Massachusetts College of Liberal Arts
141	Massachusetts College of Pharmacy and Health Sciences
142	Massachusetts Institute of Technology
143	Massasoit Community College
144	Middlesex Community College
145	Mount Ida College
146	Newbury College
147	North Shore Community College
148	Northeastern University
149	Pine Manor College
150	Providence College
151	Quincy College
152	Regis College
153	Rhode Island College
154	Roxbury Community College
155	Salem State University
156	Simmons College
157	Smith College
158	Stonehill College
159	Suffolk University
160	Syracuse University
161	Temple University
162	The Art Institute of Boston
163	The New England Institute of Art
164	Tufts University
165	Union College
166	Universal Technical Institute
167	University of Massachusetts Amherst
168	University of Massachusetts Boston
169	University of Massachusetts Dartmouth
170	University of Massachusetts Lowell
171	University of New Hampshire
172	University of New Haven
173	Wentworth Institute of Technology
174	Westfield State University
175	Wheelock College
176	Worcester Polytechnic Institute
199	Other college/university (not listed)

List of College Majors	
Survey Code	Major Name
201	Agriculture Sciences
202	Architecture
203	Area/Ethnic/Cultural Studies
204	Biological Sciences
205	Business Management
206	Communication & Journalism
207	Computer/Information Science
208	Education
209	Engineering
210	Engineering Technologies
211	English Language/Literature
212	Family/Consumer Sciences
213	Foreign languages
214	Health Professions/Sciences
215	History
216	Legal Professions & Studies
217	Liberal Arts & Humanities
218	Mathematics & Statistics
219	Military Technology/Science
220	Multi/Interdisciplinary
221	Natural Resources
222	Parks/Leisure/Fitness
223	Personal & Culinary Service
224	Philosophy/Religious Studies
225	Physical Sciences
226	Psychology
227	Social Service Professions
228	Security/Protective Service
229	Social Sciences
230	Theology/Religious Vocation
231	Visual & Performing Arts
299	Other major (not listed)