Missouri College Advising Corps
Final AmeriCorps Evaluation Report

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Executive Summary

Many education scholars cite three fundamental obstacles to college access: academic, financial, and informational barriers. These hurdles impede many low-income, first-generation students from pursuing higher education at a great loss to them and to society. The Missouri College Advising Corps (MCAC) is uniquely positioned to address many of the information and financial barriers students face in the college admissions process.

MCAC is part of College Advising Corps (CAC), which is a national program that 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.

MCAC inserts AmeriCorps members as college advisers in high schools across Missouri. The objective of the program is to increase the number of low-income, first-generation, and underrepresented students entering and completing higher education. College advisers work with the stakeholders in the school to create and execute a plan that empowers students to achieve college access and success. By assisting students with completing the critical steps necessary to enroll in a best match-and-fit college, the members attempt to increase college enrollment rates and match rates at targeted high schools. These steps include organizing college tours, fairs, and visits; conducting SAT/ACT workshops and help with exam registration; assisting with preparation of college applications and financial aid forms; and conducting scholarship searches.

This report focuses on an impact study of MCAC that utilizes an interrupted time-series method to assess its impact on college enrollment rates by measuring the extent to which college enrollment rates increased relative to the pre-program trend. MCAC strives to increase the number of low-income, first-generation-college, and underrepresented students entering and completing higher education. The *primary outcome* MCAC aims to change for students is college attendance. These are adjacent to *secondary outcomes* associated with college access such as whether a student attends an institution that is an academic match for his or her ability level. The data collected for this study focuses on measuring MCAC's impact on college enrollment rates immediately following high school graduation between 2006 and 2018.

Prior to this project, CAC completed several evaluations of their services in various regions. 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. Similarly, CAC conducted a study in Boston that found a 2.8 percent increase in college enrollment as a result of the school's partnership with CAC. 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 Corporation for National and Community Service's Social Incentive Fund (SIF). We focus on a "moderate" level of evidence for two reasons. First, MCAC is a "whole school" model. Randomizing within schools would have disrupted the underlying model; moreover, there are likely substantial spillover effects across students within schools which would have biased any "within school" design.

Additionally, there was insufficient power to randomize at the school level given that there were only 48 high schools in MCAC. Second, the staggered expansion of MCAC 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 MCAC and non-MCAC schools prior to the MCAC entering the MCAC market. We then compare how these outcomes change between MCAC and non-MCAC schools as schools begin to transition intoM 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, 48 schools are part of the program. We rely on National Student Clearinghouse data to examine the primary outcomes. We utilize internal CAC data regarding college advising activities and students experiences, and administrative data on college characteristics from the Department of Education.

Our study focuses on two central research questions related to the program's impact:

1) What is the program's impact on college access relative to what happened prior to the program's presence in a high school?

   a) To what extent have MCAC 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- and/or four-year colleges once they complete high school?

2) What are the college match rates of students attending MCAC partner high schools in Missouri?

   a) How do the college match rates of MCAC schools compare to national rates more broadly across CAC?

To answer the first research question, we utilize a quasi-experimental interrupted time-series design to compare the pre and post-MCAC college enrollment rates. We view this research question as being confirmatory. The second research question is more descriptive and exploratory in nature. While customizing the analysis for Missouri, it also establishes how the

match rates compare to other parts of the country served by CAC. This reinforces the external validity of the analyses.

We find that MCAC led to significant improvements in college enrollment in Missouri, particularly in the case of enrollments at four-year institutions. During its first-year of adoption, MCAC impacted overall enrollment in any college by 2.98 percent. Although we still see a positive impact on enrollment after the first year, the results are not significant given the lower power. In the case of four-year enrollments, after the program's first-year in a school the impact is 3.1 percent, and this increases to 3.83 percent during the second and third years of the partnership. The impact is still positive after the third year of partnership but is no longer statistically significant given the reduced power. We find negative impact on two-year enrollments, but none of the results were significant.   In terms of academic match, we found that students graduating from MCAC schools are slightly less likely to attend a college that is an academic match compared to students across CAC. Additionally, students graduating from MCAC schools are more likely to attend a college that is academically less difficult for them compared to students across CAC.

There was one deviation from the initial research plan. While the intention was to run a similar interrupted time-series analysis to assess the pre-post impact on college match rates, we were unable to obtain the necessary pre-MCAC student-level data to conduct the analysis. As a result, we are using data from CAC schools in other states as a comparison.

There were no significant changes to the budget to report.

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 Missouri and will continue to explore new avenues and partnerships that allow them to have an even stronger impact on college enrollment. Beyond their work in Missouri, 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 Missouri College Advising Corps (MCAC).[1] MCAC strives to increase the number of low-income, first- generation-college, and underrepresented students entering and completing higher education. MCAC recruits and trains recent college graduates from two partner higher education institutions in the state. These recent college graduates serve as full-time advisers in the state's persistently lowest performing schools. MCAC 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 MCAC has an impact on students' college enrollment outcomes in the fall immediately following high school graduation. 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 interrupted time-series model. This portion of the study will have high internal validity due to the usage of a quasi-experimental design.

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[1] Throughout the report, we refer to the Missouri College Advising Corps as MCAC and its parent, national organization as CAC.

Program Background and Problem Definition

MCAC'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. MCAC 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). MCAC, 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 MCAC.

MCAC's model is a targeted approach that integrates student supports into the school model to address non-academic barriers to student achievement. MCAC's logic model is illustrated in Figure 1

FIGURE 1
College Advising Corps' Logic Model
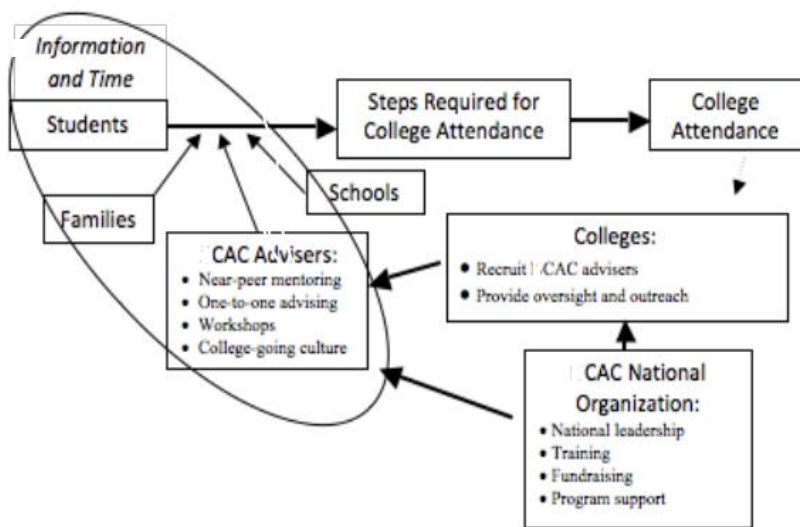
Students must complete a set of steps in order to attend college. These steps include such items as preparing for college, formulating expectations about college, preparing college applications, applying for college, taking college entrance exams, completing college financial aid forms, and selecting 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. MCAC inserts a full-time adviser who can help with information and time barriers to help students and families in the process.

MCAC partners with two 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.

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 MCAC from other college access and support programs. First, MCAC is a near-peer model. The program recruits recent college graduates as advisers whose backgrounds are similar to the high school students they serve.

Secondly, MCAC works in partnership with colleges and universities. These institutions share MCAC'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 MCAC's work.

Third, MCAC provides full-time college advisers. MCAC 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, MCAC focuses on best fit. MCAC 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, MCAC 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.

At the national level, College Advising Corps 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 currently operates in 17 states, in partnership with 31 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 Missouri, MCAC served 48 schools in 2017-18 school year. The program started in 6 schools in 2008, and ultimately grew to 48 school starting in the 2015-2016 school year.

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 MCAC 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 MCAC 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 48 schools between 2006 and 2018. The program is a full-school model potentially proving much more cost effective than many individual advising programs. Our study provides additional evidence of the effectiveness of similar programs.

Prior to the Missouri analysis, 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 research[2] 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, the study 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. The study 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, EASE conducted a study in Boston to assess CAC's impact as the program expanded to 33 schools between 2014 and 2018. We used a variant of a single group design that included an interrupted time series with a control group. We compared outcomes for CAC and non-CAC schools prior to the CAC entering the Boston market. We then compared 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 used regression modelling to estimate this model. We found a moderate-level of evidence that the program 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.

Beyond the Texas and Boston studies, 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

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[2] 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).

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 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 Missouri. The work of MCAC 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 rate of college match as it compares to national rates. We rely on three sources of data to assess these outcomes: the National Student Clearinghouse (NSC), internal advisor-student interaction data provided by MCAC, and data on postsecondary institutions from the Integrated Postsecondary Education Data System (IPEDS). We rely on both descriptive and causal evidence.

In order to appraise how well the program achieved its intended goal as described in the theory of change, MCAC regularly monitored progress on enrollment rates and academic match using two data sources: the National Student Clearinghouse (NSC) and an internal student database that captures student-adviser interactions and information. 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. 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. For the purpose of this study, GRACE data provides the necessary information on a student's college entrance exam scores in order to assess his or her academic match with a postsecondary institution.

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, it was not feasible for us to pursue a higher level of evidence through a randomized trial or other method. CAC is a "whole school" model. Randomizing within schools would have disrupted the underlying model, and given the likely spillovers within schools across students, an in-school randomized experiment would not have provided unbiased estimates.

Additionally, there was insufficient power to randomize at the school level given that there were only 48 public high schools in Missouri that participated in CAC. We did not have access to a larger number of schools in the implementation.

The staggered expansion of MCAC facilitated a quasi-experimental design. Starting in the 2007-08 school year, MCAC began rolling out throughout Missouri. In the initial years, there were just four schools; however, by 2018, 48 schools were completing. Our strategy for estimating the impacts takes advantage of this rollout. We use an interrupted time-series where we can examine the pre-MCAC and post-MCAC trends. By nature, we are using late-adopters and pre-program trends to estimate the counterfactual outcomes for MCAC schools.

Specifically, our design is a variant of a single group design that includes an interrupted time series. We compare outcomes for schools before and after they begin a partnership with MCAC. We then compare how these outcomes change as the partnership tenure increases. We use regression modelling to estimate this model. Over the entire period (the 2005-06 to 2017-18 graduating cohorts), the sample included 387 observations. In 2006 the number of schools in the sample was 4, and in 2017-18 the number of schools was 48. For the match analysis, we focus on data for the graduating class of 2018. We were able to obtain usable data for 594 students out of 9,459 students found in GRACE. This sample is much smaller than we anticipated. The final sample includes students who have either an ACT or SAT score in GRACE, with a record in National Student Clearinghouse, and who attended a college with academic match information in the Integrated Postsecondary Education Data System (IPEDS). Many students did not have ACT or SAT scores entered, or IPEDS lacked data on school characteristics and selectivity.

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 MCAC's impact.

Impact Research Questions

The study proposed two impact research questions (confirmatory):

1) ***Confirmatory Impact:*** What is the program's impact on college access relative to what happened prior to the program's presence in a high school?

a) To what extent have MCAC advisers increased the likelihood that students attend any college once they complete high school?
b) Have MCAC advisers increased the likelihood that students attend two- or four-year colleges once they complete high school?

2) ***Confirmatory Impact:*** What are the college match rates of students attending MCAC partner high schools in Missouri?

a) How do the college match rates of MCAC schools compare to national rates more broadly across CAC?

We find that MCAC led to significant improvements in college enrollment in Missouri, particular in the case of enrollments at four-year institutions. During its first-year of adoption, MCAC impacted overall enrollment in any college by 2.98 percent. Although we still see a positive impact on enrollment after the first year, the results are not significant given the low power. In the case of four-year enrollments, after the program's first-year in a school the impact is 3.1 percent, and this increases to 3.83 percent during the second and third years of the partnership. The impact is still positive after the third year of partnership but is no longer significant. The estimated impacts on four-year enrollments are larger than the results of previous studies conducted in Texas and Boston. We find negative impact on two-year enrollments, but none of the results were significant.   Focusing only on the point estimates, it appears that MCAC is increasing overall enrollment, primarily in four-year colleges. On net, fewer students attend two-year colleges. We are unable to determine if the increased enrollment comes from convincing students who would not have attended college to attend four-year colleges or if the increased enrollment comes from moving some students from two- to four-year colleges and other students to two-year colleges. Regardless, the results are positive.

In terms of academic match, we found that students graduating from MCAC schools are slightly less likely to attend a college that is an academic match compared to students across CAC. Additionally, students graduating from MCAC schools are more likely to attend a college that is academically less difficult for them compared to students across CAC.

There was one deviation from the initial research plan. While the intention was to run a similar interrupted time-series analysis to assess the pre-post impact on college match rates, we were unable to obtain the necessary pre-MCAC student-level data to conduct the analysis. GRACE data which included SAT and ACT data were not available for the pre-period; moreover, it was relatively weak prior to 2018. As a result, we are using national CAC match rates for a comparison.

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 MCAC 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 MCAC advisers who serve in high schools as full-time college counselors. This study fills a gap in the literature on the effectiveness, influence, and impact of advisers on high school students' college access.

While the estimated impacts are consistent with prior studies, the level of evidence is moderate. Given the operational and data constraints in Missouri, we were only able to use pre- and post-data on MCAC schools. An interrupted time-series provides rigorous, quasi-experimental evidence. 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 Missouri. First, we use an interrupted time series method to measure our impact on college enrollment rates by measuring the extent to which college enrollment rates increased relative to the pre-program trend. 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 multiple years of data in the sample and ability to assess impact after an extended partnership with a school. Since its inception, MCAC has measured college enrollment rates at each of its partner high schools by partnering with NSC. Each partner high schools shares rosters of graduating seniors for the three years prior to MCAC's arrival at the school. We then submit each of these rosters to the NSC to determine a three-year baseline pre-MCAC college enrollment rate for the partner high school. Then, for every year post-MCAC's inception, we submit the roster of graduates to the NSC to track college enrollment rates over time. Consistent with the SIF evaluation guidelines, our three-year baseline provides sufficient sample to establish the trend in college enrollment prior to the treatment. We then assess how this trend changes with the inception of MCAC. Moreover, because of the staggered nature of implementation between existing and incoming MCAC

schools, we can also contrast impacts over different starting points. Schools first began partnering with MCAC in 2008 and new schools continued to enter until 2016. Using different starting points, strengthens our interrupted time series strategy. Interrupted time series can be biased if trends change over time for reasons other than the intervention. By using staggered starting points, we are less susceptible to biases arising from jumps in enrollment in a single year.

Table 1 provides a breakdown of the school and student sample by year of data, and Table 2 provides a breakdown of the school sample by number of years with MCAC. For the period discussed in this report (2006-2018 graduating cohorts), the sample includes more than 75,000 students across 48 schools.

Table 1
Breakdown of school and student sample by year of data

Graduation Year	No. of Schools	No. of Students	Mean College Enrollment Rate
2006	4	619	32.91%
2007	6	878	40.92
2008	7	1288	42.82
2009	21	4276	44.08
2010	22	4725	48.55
2011	23	4735	51.26
2012	37	7226	49.08
2013	39	7436	49.60
2014	41	7690	47.88
2015	43	7808	47.74
2016	48	9519	46.82
2017	48	9409	47.68
2018	48	9484	46.12
Total/Average	**387**	**75,093**	**45.80**

SOURCE: 2006-2018 NSC data

Table 2
Breakdown of school sample by number of years with CAC as of 2016

No. of Years with CAC	No. of Schools
1	41
2	41
3	40
4	36
5	25
6	25
7	24
8	10
9	8
10	6

The basic strategy in an interrupted time-series is to establish a baseline enrollment rate prior to the implementation of MCAC in a school. Once MCAC has started, the goal is then to re-measure the enrollment rate and compare it to baseline. The degree to which this difference has changed reveals the effect of MCAC on a specific outcome. In some sense, pre-program data help us estimate what the counterfactual would have been in the absence of the program, and the staggered nature of entry allows the pre-program data for the late-entry MCAC schools to help estimate this counterfactual. In the initial years, the impacts of MCAC arise both from the differences in pre-program outcomes and the differences that emerge once schools formally become part of MCAC.

The model is very similar to a difference-in-differences model. We can include fixed effects for each school and for each year. We are thus isolating changes in individual schools' trends that correlate with the establishment of the program while controlling for the underlying trends in college enrollment that may have affected Missouri over the same time period. While the model is not perfectly balanced in terms of data (i.e. we do not have data for all schools in all years), we do have three-years of pre-data for each school giving us a more balanced panel in later years.

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

(1) $y_{it} = a_i + b_t + c*Treatment_{it} + e_{it}$

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. 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 "c" 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 MCAC high schools from the 2006 graduation year until the 2018 graduation year. Our data includes college enrollment data for all students. Attrition is a common problem in interrupted time series models; however, given that the data are administrative data, there is no attrition in our sample.   We can track all schools through the 2018 graduating cohort. 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.

We can also replace the "Treatment" variable with one that measures the impact in the first, second, third, and subsequent years. In Table 3, we report a parametrization where we examine four different "ages" of the programs. It is important to note that our statistical power is

maximized for young ages of the program. We have few (and likely a non-random subset of) schools who have been in the program longer than seven years.

The second component of the study is assessing the college match rates at MCAC schools. To measure the college match, our data come from three sources. We have GRACE data which record students' ACT and SAT scores, NSC data which allow us to track students' college enrollments, and IPEDS data which allow us to identify the admissions test score distribution for a given college. It is important to bear in mind that through this analysis we lose a number of observations for three reasons. First, we lose a number of observations for students whose records in GRACE are incomplete (e.g. lacking an ACT or SAT score). Matching can only be defined for students with ACT or SAT scores in GRACE; otherwise, we do not know a students' "academic quality." Second, we lose some observations through the match process with NSC records in the event that a match cannot be identified. Finally, even when we match NSC data, a number of institutions fail to report ACT or SAT scores. Our analysis focuses specifically on the graduating class of 2018, and the sample includes 594 students.

We start by defining college match among students who elect to attend two or four-year colleges. We define undermatching according to the interquartile range at the institution where students want to attend. For example, suppose that the interquartile range of ACT scores runs between 22 and 29. In this case a student with an ACT over 30 would have "undermatched." This student is more qualified than 75 percent of her peers at this institution.   This student could have attended a more selective institution with better peers. If students' ACT scores fall within the interquartile range, then we label students as evenly matched. If students' ACT scores lie below the interquartile range, then we label students as "overly matched."   For the purpose of this analysis, two-year colleges are never considered an overmatch for students. Instead, two-year colleges are considered an even match if they have an ACT score of less than 18, and they are considered an undermatch if they have an ACT score of over 18.[3]

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 relative to what happened prior to the program's presence in a high school?

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[3] In GRACE, advisers indicated that some students took the ACT and other students took the SAT. The scores are put on the same scale using a table found here: https://blog.prepscholar.com/act-to-sat-conversion

a) To what extent have MCAC advisers increased the likelihood that students attend any college once they complete high school?
b) Have MCAC advisers increased the likelihood that students attend two- or four-year colleges once they complete high school?

Table 3 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 MCAC schools. Students with no NSC record are considered as non-attendees. Table 4 breaks down the enrollment results based on type of college.

If we aggregate across all years, enrollment rates have improved by about 4 percent overall. This masks important heterogeneity. In the first year that MCAC partners with a school, students are 3 percentage points more likely to attend college in the fall after high school graduation. This increase holds steady during years two and three of the partnership although the results are become less precise. The increase begins to decline the fourth year after MCAC enters a school. The estimated impacts are not surprising. In a randomized trial that MCAC ran in Texas and Boston, the estimated impacts were similar both in magnitude and statistical significance when allowing for correlation across time within schools. Moreover, in Texas we found a similar drop-off in impact following the first-year of partnership with MCAC.

TABLE 3
Change in Overall Enrollment Rates in Fall After High School Graduation after the Introduction of CAC

	Model 1		Model 2	
	Any College		Any College	
School has CAC this Year	4.170	*		
	(1.696)			
First Year with CAC			2.982	+
			(1.767)	
Second-Third Year with CAC			3.128	
			(2.325)	
Fourth-Fifth Year with CAC			2.248	
			(3.347)	
Sixth Year or More with CAC			0.539	
			(3.631)	
Constant	41.945	***	40.583	***
	(2.945)		(3.557)	
R2	0.129		0.133	
N (Observations)	387		387	
N (Schools)	48		48	

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
NOTE: The unit of analysis is high school by graduating class. All models have high school fixed effects, fixed effects for year of high school graduation, and standard errors that are clustered by high school. The coefficients compare enrollment in years that a school has CAC relative to years where the same school did not have CAC.
SOURCE: 2006-2018 NSC data

In Table 4, we report estimated impacts on four-year and two-year enrollment respectively. We measure these as enrollments that occurred the fall after high school graduation. In these cases, the estimated impacts for four-year enrollments are statistically significant after the program enters a school. The estimated impact on four-year enrollments is 3.1 percent after the first year MCAC enters a school, and the impact increases to 3.8 percent during the program's second and third year in a school. In contrast, we find a negative impact on two-year enrollments, but the results are not significant. The negative impact on two-year enrollment suggest that MCAC advisers may be redirecting students who otherwise may have attended community college to four-year institutions. Although the decline is minimal, it is clear that MCAC is having a more profound impact on getting more students to enroll at four-year colleges rather than two-year colleges. This impact is promising given that in previous studies we have found the opposite to be true. Typically, we find a larger impact on two-year enrollments because of the student population CAC serves, which is primarily low-income and first-generation students. This finding in Missouri suggests that MCAC is helping to elevate the postsecondary outcomes of an underrepresented student population.

TABLE 4
Change in Enrollment Rates in Fall After High School Graduation after the Introduction of CAC by College Type

	Model 1				Model 2			
	4-Year College		**2-Year College**		**4-Year College**		**2-Year College**	
School has CAC this Year	4.426	***	-0.258					
	(0.970)		(1.247)					
First Year with CAC					3.109	*	-0.344	
					(1.183)		(1.369)	
Second-Third Year with CAC					3.828	*	-0.848	
					(1.447)		(1.816)	
Fourth-Fifth Year with CAC					2.997		-1.071	
					(2.034)		(2.772)	
Sixth Year or More with CAC					1.512		-1.552	
					(2.659)		(3.172)	
Constant	22.672	***	19.637	***	21.591	***	19.140	***
	(2.513)		(2.156)		(2.402)		(2.820)	
R2	0.118		0.228		0.125		0.229	
N (Observations)	387		387		387		387	
N (Schools)	48		48		48		48	

NOTE: + $p \leq 0.10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$
NOTE: The unit of analysis is high school by graduating class. All models have high school fixed effects, fixed effects for year of high school graduation, and standard errors that are clustered by high school. The coefficients compare enrollment in years that a school has CAC relative to years where the same school did not have CAC.
SOURCE: 2006-2018 NSC data

College Match Outcomes

The second research strand focuses on the program's impact on the college match rates of students attending MCAC schools. The following section addresses these questions.

2) What are the college match rates of students attending MCAC partner high schools in Missouri?
   a) How do the college match rates of MCAC schools compare to national rates more broadly across CAC?

There are many barriers and challenges associated with applying to college such as creating an appropriate college list. MCAC advisers spend a significant amount of time exploring college options with their students and helping each individual determine the best match school for them. Assisting with the college search process is an important component of MCAC's work in a school, as many policymakers, practitioners, and academics have argued that many students undermatch attending institutions that are clearly inferior to their academic qualifications. While these institutions have some merits, these institutions typically have lower academic achievement and lower graduation rates. The phenomenon is especially pervasive for low-income, first-generation college students who may not have had the knowledge necessary to apply and enroll in match institutions.

Figure 2 illustrates the matching rates for students who graduated from MCAC schools in 2018. About 33 percent of students "undermatch." These students score higher than the 75th percentile at their chosen campus. About 49 percent of students evenly match. The remaining 19 percent of students "overmatch" and are at a school that is somewhat challenging for them.
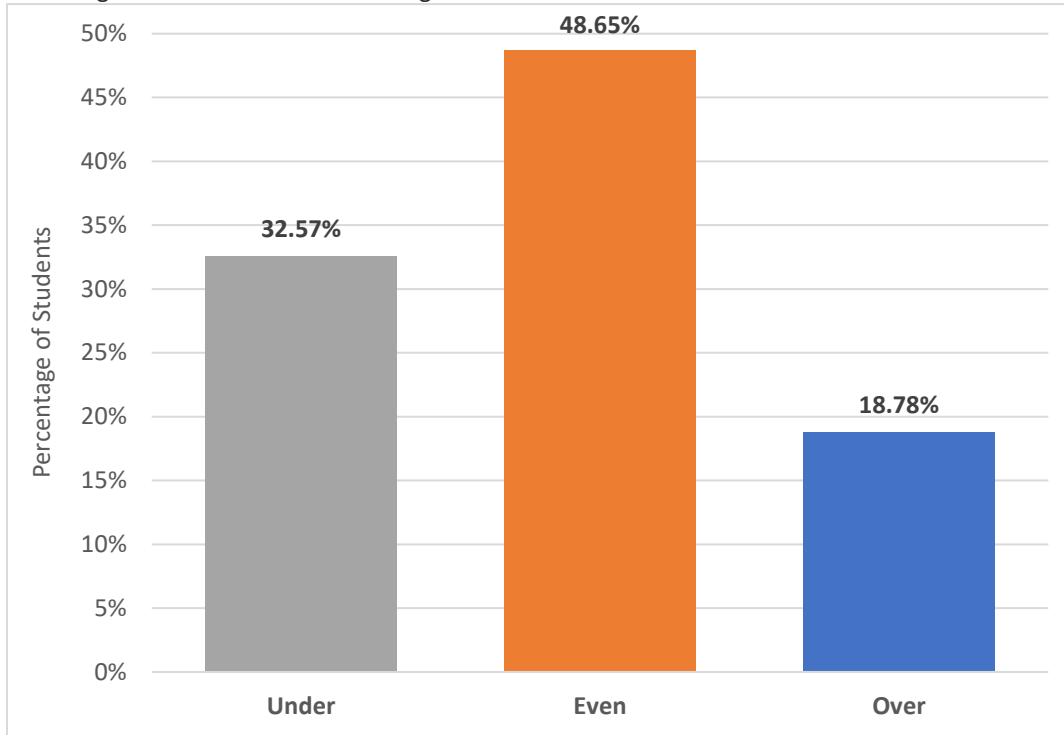
Figure 3 illustrates how MCAC's match rates compare to the program nationally. Relative to schools across all CAC schools nationally, the even match rate for students graduating from MCAC schools is 2.7 percent less; however, the larger differences pertain to the under and over match rates. Students graduating from MCAC schools are more likely to undermatch relative to the national program rates (10.37 percent), but they are less likely to overmatch (7.68 percent).

These numbers suggest that students graduating from MCAC-served schools are more likely to enroll at institutions that are a good academic match, or those that may not be academically difficult enough for them. Students are less likely to enroll at institutions that may be academically difficult. Although research suggests that students would be better served in terms of retention and graduation rates by attending an over match rather than an under match institution, we have found through previous work on college match that students who undermatch typically have higher retention rates than students at other institutions, particularly when they have significant financial aid. Persistence rates are also higher within the same institution for undermatched students. Transfer rates (i.e. the difference between overall persistence and persistence at the same institutions) are slightly higher for undermatched students.

While the estimates provided here are the best given the data we received, we note some cautions in interpreting the match data. First, there are many missing values. We only use about six percent of the graduating class of 2018. While matching may only be established for those students who go to college and in those colleges for which there are data, our data are missing

substantial information on ACT and SAT scores. Second, in the prior section, we find some evidence that four-year enrollment is improving. An improvement in four-year attendance is particularly promising. These results in the prior section do not suffer from any attrition and control for changes over time. As a result, the caution the reader from drawing strong conclusions in this part of the research.

FIGURE 3
Comparison of 2018 MCAC and CAC Matching Rates
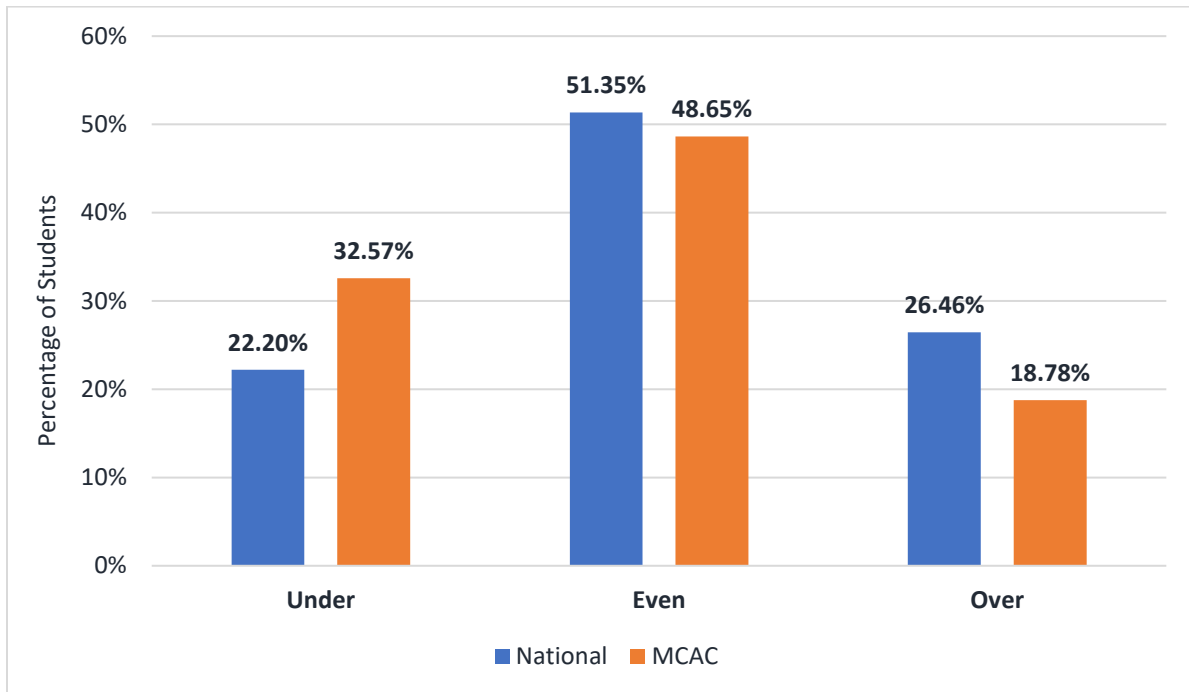
IV.   Findings, Lessons Learned, Next Steps

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

Impact Findings:

- ● MCAC improved college enrollment for students.
- ● MCAC was especially effective at improving enrollment rates at four-year colleges and universities.
- ● While the evidence is not as strong, we also find that students graduating from MCAC schools are slightly less likely to attend a college that is an academic match compared to students across CAC.
- ● Similarly, students graduating from MCAC schools are more likely to attend a college that is academically less difficult for them compared to students across CAC.

The most important finding is that MCAC led to significant improvements in college enrollment, particularly in terms of four-year enrollments. This finding speaks to the effectiveness of the program at elevating the postsecondary outcomes for its targeted demographic. In previous studies of other CAC programs, we have found a greater impact at the two-year level, so it is encouraging to see an impact at the four-year level in Missouri. Additionally, the evidence on this outcome comes from a strong, quasi-experimental frame. We utilized 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 primarily because we are unable to conduct a more rigorous design using randomization. Moreover, in terms of assessing college match, we are not able to identify match rates prior to MCAC, and therefore cannot determine whether the rates changed after the program enters a school.

In terms of lessons for future evaluations, it will be important to continue monitoring the undermatch rate at MCAC schools and gather additional qualitative data to explore why students may be choosing less difficult institutions. As data quality is improved, the sample will increase leading to greater statistical power and less probability of sampling error. If indeed the comparisons on undermatching are true, then there are several hypotheses as to why this might be the case, such as family income and proximity to postsecondary institutions. More qualitative data might shed light on students' college application behavior and decision-making process so that the program can understand how best to intervene. Additionally, it will be important for the program to build a more robust dataset on student demographics, such as race, first-generation status, and income. This data will allow for a more nuanced analysis on student subgroups so that we can explore how enrollment and match outcomes vary across students.

Finally, as a program, CAC continues to expand its services to new schools and states with a larger goal of helping one million students enroll in college by 2025. Given the outcomes of this study, it will be important for CAC to continue exploring its impact in Missouri, particularly in terms of increasing four-year enrollments. Better understanding how MCAC was able to increase the number of students attending four-year institutions right out of high school will help to strengthen CAC's practices nationally as they try to meet this ambitious enrollment goal.

V.   References

Adelman, C. (1999). Answers in the Tool Box. Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment.

Adelman, C. (2006). The toolbox revisited: Paths to degree completion from high school through college. *US Department of Education*.

Assistance, S. F. (2005). ADVISORY COMMITTEE ON STUDENT FINANCIAL ASSISTANCE.

Avery, C. (2013). *Evaluation of the College Possible program: Results from a randomized controlled trial* (No. w19562). National Bureau of Economic Research.

Avery, C., & Kane, T. J. (2004). Student perceptions of college opportunities. The Boston COACH program. In *College choices: The economics of where to go, when to go, and how to pay for it* (pp. 355-394). University of Chicago Press.

Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *The Quarterly Journal of Economics*, *127*(3), 1205-1242.

Bettinger, E. (2015). Need-based aid and college persistence: The effects of the Ohio College Opportunity Grant. *Educational Evaluation and Policy Analysis*, *37*(1_suppl), 102S-119S.

Bowen, W. G., Chingos, M. M., & McPherson, M. S. (2009). *Crossing the finish line: Completing college at America's public universities* (Vol. 52). Princeton University Press.

Cahalan, M., & Perna, L. (2015). Indicators of Higher Education Equity in the United States: 45 Year Trend Report. *Pell Institute for the Study of Opportunity in Higher Education*.

Carrell, S., & Sacerdote, B. (2016). Why do college going interventions work? forthcoming. *American Economic Journal: Applied Economics*.

Castleman, B. L., Arnold, K., & Wartman, K. L. (2012). Stemming the tide of summer melt: An experimental study of the effects of post-high school summer intervention on low-income students' college enrollment. *Journal of Research on Educational Effectiveness*, *5*(1), 1-17.

Castleman, B. L., Page, L. C., & Schooley, K. (2014). The Forgotten Summer: Does the Offer of College Counseling After High School Mitigate Summer Melt Among College-Intending, Low-Income High School Graduates?. *Journal of Policy Analysis and Management*, *33*(2), 320-344.

Cunha, J. M., Miller, T., & Weisburst, E. (2018). Information and College Decisions: Evidence From the Texas GO Center Project. *Educational Evaluation and Policy Analysis*, *40*(1), 151-170.

Dynarski, S. M., & Scott-Clayton, J. E. (2006). *The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics* (No. w12227). National Bureau of Economic Research.

Dynarski, S. (2008). Building the stock of college-educated labor. *Journal of human resources*, *43*(3), 576-610.

Gándara, P. (2001). Paving the Way to Postsecondary Education: K-12 Intervention Programs for Underrepresented Youth. Report of the National Postsecondary Education Cooperative Working Group on Access to Postsecondary Education.

Hoxby, C. M., & Turner, S. (2015). What high-achieving low-income students know about college. *American Economic Review*, *105*(5), 514-17.

Klasik, D. (2012). The college application gauntlet: A systematic analysis of the steps to four-year college enrollment. *Research in Higher Education*, *53*(5), 506-549.

Lee, V. E., & Ekstrom, R. B. (1987). Student access to guidance counseling in high school. *American Educational Research Journal*, *24*(2), 287-310.

Lipsey, M. & Wilson, D. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage Publications.

Long, B. T., & Riley, E. (2007). Financial aid: A broken bridge to college access?. *Harvard Educational Review*, *77*(1), 39-63.

Maynard, R. A., Orosz, K., Andreason, S., Castillo, W., Harvill, E., Nguyen, H., Robertson-Kraft, C., & Tognatta, N. (2014, November). A systematic review of the effects of college access programs on college readiness and enrollment. Paper presented at the annual meeting of the Association for Public Policy Analysis & Management.

Myers, D., Olsen, R., Seftor, N., Young, J., & Tuttle, C. (2004). The Impacts of Regular Upward Bound: Results from the Third Follow-Up Data Collection. MPR Reference No. 8464-600. *Mathematica Policy Research, Inc.*

Oreopoulos, P., & Petronijevic, U. (2013). Making college worth it: A review of the returns to higher education. *The Future of Children*, 41-65.

Roderick, M., Nagoaka, J., Coca, V., & Moeller, E. (2008). From high school to the future: Potholes on the road to college. The University of Chicago Consortium on Chicago School Research.

Tomás Rivera Policy Institute at University of Southern California (2004). Caught in the financial aid information divide: A national survey of Latino perspectives on financial aid. Reston, VA: The Sallie Mae Fund.

Zhang, X, & Sun, J. (2016). Meta-analysis of evaluations across the Social Innovation Fund Program: Final report. (Prepared for the Corporation for National and Community Service, Office of Research and Evaluation). Fairfax, VA: ICF International.

VI.   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.