SUPPORTING STUDENTS TO AND THROUGH COLLEGE

WHAT DOES THE EVIDENCE SAY?

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DISCLOSURES

1. INTRODUCTION

Attending and completing college is the most reliable pathway to secure a stable economic future. But many students, especially those from disadvantaged backgrounds, struggle to transition to college and to stay on track to complete a degree. Disparities in academic preparation through high school—due to uneven access to opportunities to learn throughout childhood and adolescence—account for a substantial portion of disparities in college enrollment and completion. But enrollment and completion gaps even among students with similar academic preparation are substantial; this is especially true for gaps by socioeconomic status (Reber and Smith 2023). This suggests that barriers other than academic preparation also limit access to college for some students. Once on campus, navigating academic, financial, and other requirements is challenging. Any number of financial or personal challenges can throw a student off track.

Many programs and interventions try to help students apply to, enroll in, and complete college. Traditional college access and completion programs are expensive, costing thousands of dollars per student. Lower-cost "low-touch" or "nudge" interventions focus more narrowly on helping students overcome specific barriers to accessing and completing college. More comprehensive programs attempt to address a wider range of barriers students might face. Many of these programs have been evaluated in rigorous, random-assignment studies. What has been learned about college access and completion programs and interventions? What practices and approaches are most promising? Where is additional research needed?

This report provides an in-depth and critical review of the evidence from two-plus decades of research on interventions or programs designed to increase college access and completion. College students and would-be college students are often managing their lives and education independently for the first time, may have responsibilities outside of school, and often face personal or family challenges while pursuing their education. For these reasons, effective student support services, provided directly by high schools and postsecondary institutions or through an "intervention," will always be needed.

At the same time, a major theme of both the research in this area and especially the expert discussions that were held as part of the research is that everything about college is too complex. Each bit of complexity exists for a reason, but policymakers and education leaders interested in improving college access and success should strive to reduce complexity and increase transparency in addition to developing effective student services or interventions. While the evidence is not always definitive, the literature evaluating college access and completion interventions offers many lessons on how to help learners to and through college.

2. DEFINING THE PROBLEM

Why are interventions to increase college enrollment and success necessary at all? What problems are they addressing and what outcomes should they target? Postsecondary education has high returns, both for individuals and for society. To reap these rewards, potential students need to make the transition from high school to postsecondary education and, ideally, complete the program in which they enrolled. This does not mean that every high school graduate should get a college degree or that attending college without completing has no value at all, but there is good reason to believe that currently too few high school graduates enroll in and complete postsecondary education.

Notably, disparities in access and completion by race and socioeconomic status are large and long-standing (Reber and Smith 2023; Bailey and Dynarski 2011). These disparities directly inhibit intergenerational mobility and promote inequality and, at the same time, suggest that the system is not providing equitable opportunities to develop talent and build human capital. Motivated by these concerns, the vast majority of the interventions reviewed target students from lower-income families and/or who identify with historically excluded racial and ethnic groups. [1]

Many obstacles can throw students off their path to and through college—from inaccurate or insufficient information, unexpected costs (for education or otherwise), and trouble completing paperwork or paying the tuition bill to unstable housing, food insecurity, and family responsibilities. Some students struggle with time management, especially balancing work and school, and many need to develop academic skills they didn't gain in high school to be successful in college. College access and completion interventions attempt to address these barriers. Despite considerable overlap, both the motivations and goals of access and completion programs differ in some ways, so I discuss each in turn.

2.1. THE LOGIC OF COLLEGE ACCESS INTERVENTIONS

Colloquially, having "access" to college typically means something like having the opportunity and support to pursue higher education if one is qualified and interested. In the college access intervention literature, the term college "access" has a narrower meaning, instead referring to the rate at which students enroll in postsecondary education. That is, the key outcomes in "college access" intervention studies are typically enrollment in any or a particular type of postsecondary institution (e.g., two-year, four-year, selective). Following the literature, I use "access" in this narrower sense, interchangeably with college "enrollment" and "participation."

The disparities in college participation discussed above raise the question of whether interventions can be designed to help students navigate barriers that prevent them from enrolling in colleges for which they are academically eligible. Although concern about enrollment disparities among academically similar learners motivates many access interventions, it is notable that disparities in academic preparation are the primary driver of racial, socioeconomic status (SES), and gender disparities in college enrollment and completion. Some access interventions also include components that could improve academic skills which, though this is typically not the main focus, could also help students succeed in college once enrolled.

The direct and indirect cost of college is an obvious potential barrier for students from lower-income families. Research on the effects of college tuition and financial aid suggests that price does matter, but it is not the only or even main factor explaining enrollment gaps (Dynarski et al. 2022; Hemelt and Marcotte 2011). College pricing has become less transparent over time, as many institutions have increased the "sticker price" but also provid-

ed more financial aid based on both financial need and academic merit. Students and their families often think college will be more expensive than is actually the case once financial aid is taken into account; uncertainty or confusion about the cost of college is an important barrier to enrollment (Levine, Ma, and Russell 2023; Levine 2014; Burland et al. 2023).

Because of the complexity and uncertainty surrounding college pricing, as well as the difficulty and importance of completing the Free Application for Federal Student Aid (FAFSA) and other financial aid paperwork, many college access interventions include components focused on ensuring students complete financial aid paperwork. Some interventions also try to reduce uncertainty about college costs. These approaches are related to college costs and financial aid but are often not scholarship or financial aid policies, per se. Students interested in four-year colleges also need to complete a series of tasks, from standardized test-taking, figuring out where to apply, and completing applications. Community colleges usually have simpler application procedures and do not have selective admissions, but understanding which program is the best fit and how to pay for it is still complicated. Pursuing a four-year degree via a transfer pathway is arguably more complex than applying directly from high school.

Complex processes with multiple steps and strict deadlines can be a challenge even for adults to navigate successfully. Adolescents can be myopic and more prone to procrastinating than adults. Middle- and upper-middle-class high schoolers typically have substantial support—formally and informally—for the college application process from their schools and families. This includes both information about how and where to apply and help completing applications, interpreting financial aid offers, and deciding where to attend. Students who do not have this support are less likely to successfully transition to college even if they are academically prepared.

Many college access interventions attempt to fill in for this missing information and support, targeting students who are academically ready for college. Some interventions tackle aspects of academic or test preparation in addition to providing support for the application process itself. For example, the program might advise students on courses they should take in high school or help them prepare for the ACT or SAT. Although standardized test prep is often seen as a way for more socioeconomically advantaged students to get an unfair leg up in admissions, high quality test prep may improve academic skills beyond the test. If they are successful in improving academic or test-taking skills, these program components have the potential to improve college success in addition to enrollment.

The Federal TRIO programs are the largest and longest-running federally funded efforts to promote college access. Originally established in 1965 with three programs—Upward Bound, Talent Search, and Student Support Services—TRIO has since expanded to eight programs, including several variations of the original initiatives. These programs aim to promote equal access to educational opportunities by increasing college readiness and aspirations for students from low-income, first-generation, and underrepresented minority backgrounds ("Federal Trio Programs | U.S. Department of Education" 2024). Although the federal government currently invests more than $1 billion per year in TRIO programs and they figure prominently in discussions of college access programming, only Upward Bound is part of our review because it is the only TRIO program that has been evaluated in a random-assignment study.

2.2. THE LOGIC OF COLLEGE SUCCESS INTERVENTIONS

While there is an overlap in the strategies programs take to increase college enrollment and completion—and some programs target both—completing college is more difficult and complex than enrolling in college. Students continue to need to complete certain tasks—from FAFSA to course registration to housing applications—on time, but they also have to choose a plan of study and succeed in their coursework. Many students simply have a lot

going on in their lives. As a result, there are a broader range of approaches taken in completion programs relative to access programs. In addition to helping students navigate the paperwork, financial aid applications, and academic requirements necessary to remain enrolled, completion programs may also attempt to help students learn time-management and study skills, support them in coursework, and address a wide range of academic and personal challenges that might cause them to underperform academically or drop out.

The need to manage family and work, as well as economic precarity, can leave students with little time and energy to focus on their studies and manage the complex tasks they need to progress in school. Some more comprehensive interventions that address a wide range of student needs may work by reducing stress and anxiety about how to make ends meet and get it all done, freeing up bandwidth to succeed at school.

Finally, some interventions that start in high school as access interventions can also operate as completion interventions by directing students to institutions or programs where they are more likely to succeed.

3. THE SCOPE OF THIS REPORT

The goal of this research is to identify promising strategies for policymakers, advocates, educational institutions, and college access and success professionals to help students succeed, in addition to mapping out directions for future research in this area. This section describes how we[2] approached this task and the scope of this report.

3.1. APPROACH

This research effort began by compiling studies of college access or completion interventions that were evaluated using a strong causal design, focusing on "advising" and related approaches. Most are randomized-controlled trials (RCTs), but we included a few studies with credible quasi-experimental causal designs. We summarized the interventions and evaluations according to a rubric and developed questions and hypotheses to discuss in a series of small-group expert meetings held virtually. Nineteen experts who have contributed to research in this area participated in these meetings to discuss findings and lessons from across the literature. Before the meetings, we shared our preliminary list of studies and solicited suggestions for additional studies to include in our review and asked participants to complete a survey.

The experts identified many additional studies that would broaden the scope of the review, and what types of interventions should be included in a review of "interventions to improve college access and success" was an important topic of discussion in the meetings. While most of the experts supported the notion that the kinds of support provided by access and success programs is important, they are not necessarily convinced such programs are the only or best approach that policymakers, educational institutions, and researchers should consider. In addition, the focus on approaches that can be evaluated using an RCT design naturally shifts attention to "interventions" that are layered on top of existing systems, rather than more integrated approaches to supporting students or policies to simplify procedures and reduce barriers, both of which could be more effective but are difficult to study with strong causal methods.

We maintained the emphasis on interventions designed to promote college access and completion, despite the important limitations of this focus discussed above. We did not conduct a formal meta-analysis, but rather an in-depth and critical literature review.

We begin with traditional "advising" programs, where participants receive personalized support navigating the system(s) one-on-one or in a small group or class. We then consider two additional broad classes of programs: those that build on the advising model by including additional components ("comprehensive" programs) and those that attempt to get some of the benefits of the advising model at lower cost or using approaches that are more easily scaled ("low-touch" interventions). Although the boundaries are sometimes blurred and we draw conclusions by looking across all studies, it is useful to group interventions into those three categories:

- Comprehensive Programs
- Advisors and Navigators: Counseling, Coaching, and Mentoring Programs
- Low-Touch Interventions

Here, we first describe the types of interventions that fall into each category. We draw out more specific conclusions and recommendations from across the literature below. For reference, the appendix provides brief summaries of all the programs we reviewed falling into these three categories, as well as references to the studies evaluating the interventions. For brevity, when referring to interventions and programs that are summarized in the

appendix, we sometimes omit citations in this report; see the appendix for all of the studies that correspond to each intervention.

3.2. COMPREHENSIVE ACCESS AND COMPLETION INTERVENTIONS

Interventions are classified as "comprehensive" if they include several components, addressing multiple potential barriers that students might face. Comprehensive interventions typically include several of the following: counseling/coaching/advising, navigators, case management, help with transportation, emergency or "last-dollar" financial aid to cover any gap between the cost of attendance and financial aid, academic support, special sections of classes, learning communities, tutoring, and more. The line between the "comprehensive" and "advisor and navigator" categories is not always clear. An advisor or mentor is a core component of all comprehensive interventions. To be included in the comprehensive category, an intervention generally had to have three or more components, but there is a wide range of intensity, both on paper and in practice, and potential overlap with the advisor and navigator category.

The Accelerated Study in Associate Programs (ASAP), first implemented at several City University of New York (CUNY) campuses, exemplifies how comprehensive programs combine multiple support mechanisms. CUNY ASAP participants had access to a broad range of supports, including academic advising, tutoring, career counseling, special sections of some courses and early access to registration, last-dollar scholarships, and a MetroCard. The program was replicated at several Ohio community colleges. Notably, the Ohio implementation achieved similar results at about half the cost by modifying certain elements, such as using existing college success courses rather than program-specific ones and implementing a tiered advising model (wages were also likely lower in Ohio than New York).

Accelerate, Complete, Engage (ACE) is an adaption of the ASAP model to a four-year college context at CUNY's John Jay College, maintaining core elements like intensive advising and financial support while modifying others, such as leveraging existing academic support services rather than providing dedicated tutors (we did not find a cost estimate for ACE). SUCCESS, an attempt to deliver a comprehensive model at lower cost, differed somewhat across the institutions that adopted it but generally included monthly coaching with financial incentives and deployed progress monitoring systems.

Project QUEST and VIDA focused on labor-market aligned degrees and certificates, coupling financial assistance for educational expenses with counseling, academic support, and job placement services. These programs had substantial per-participant costs (around $15,000 in 2023 dollars). Both programs included weekly meetings integrating academic support, life skills development, and career preparation.

The variation in program costs—from about $1,400 for SUCCESS to $23,000 for CUNY ASAP (both in 2023 dollars)—reflects differences in program intensity, support mechanisms, and implementation approaches.

There are fewer comprehensive programs for college access with that have been evaluated with credible causal methods. Upward Bound, a long-running federal program to promote college access and success, combines instruction, tutoring, outreach, and counseling over extended periods (typically about 20 months) while students are in high school. Upward Bound is expensive, costing around $14,000 per participant (in 2023 dollars). The One Million Degrees (OMD) program was designed to promote college completion by providing last-dollar financial assistance, advising, coaching, and professional development workshops in Chicago-area community colleges. The program had effects on college enrollment for students who were selected to participate directly from high

school—before many of the services targeted to completion took place—suggesting that it in fact functioned as an access as well as completion intervention.

3.3. ADVISORS AND NAVIGATORS: COUNSELING, COACHING, AND MENTORING

This category includes classic mentoring, advising, counseling, and coaching interventions, where participants received information and help—either individually or in a group or class—with various tasks related to college access or success. "Navigators" help connect participants to other services, either on campus or more broadly, instead of or in addition to counseling students themselves. An advisor or mentor was a core component of all the comprehensive interventions described above, and some interventions included here had at least one other component besides an advisor (such as emergency financial assistance).

Programs in this category vary substantially along several key dimensions. Some employed near-peer advisors while others used professional advisors or counselors or a combination of the two. The intensity and structure of advising also varied considerably. For example, Stay the Course (STC) implemented an intensive case management model, while HEART required two advisor meetings per semester tied to financial incentives. Programs differed in how they integrated with existing institutional resources—some functioned as standalone services while others coordinated with campus offices. MAAPS attempted to deploy analytics-driven advising, though implementation challenges at many sites limited its effectiveness.

Some interventions in this category target an intermediate outcome—such as improving study and time management skills, exiting academic probation, or making an academic plan—in hopes of improving academic progress and ultimately, completion. For example, the Opening Doors program at Chaffey College significantly increased the rate at which students exited academic probation, while the My Academic Plan (MAP) intervention doubled completion of academic plans. The Virtual Coaching program at the University of Toronto increased study time by two hours per week. Often, such improvements in intermediate outcomes did not translate into increased persistence or completion.

Some programs attempt to influence both college access and completion by combining intensive advising during high school with strategic guidance about institutional choice. Bottom Line and College Forward exemplified this approach, working with students from high school through college, steering them toward higher-quality institutions. Some interventions that provide enhanced advising along with a scholarship (Carolina Covenant, Longhorn Scholars) are also included in this category, though the effects of the scholarship and advising cannot typically be separately identified in those studies.[3]

Costs for interventions in this category varied substantially, from relatively inexpensive interventions like the College Advising Corps at around $180 per student (in 2023 dollars) to more intensive programs like College Forward and Bottom Line, which cost around $5,000 per participant (in 2023 dollars). This variation reflects differences in advisor type, caseload size, support intensity, and program duration. While some lower-cost interventions influence specific behaviors, achieving substantial effects on enrollment and completion often require more intensive support.

3.4. "LOW-TOUCH" INTERVENTIONS

This category includes interventions that address one or more barriers to college access or completion but were primarily automated and involved little direct interaction with a person. Many interventions in this category attempted to get the benefits of counseling, coaching, and mentoring at lower cost and make those services easier

to scale. Others provide information, especially about the cost of college, or draw lessons from behavioral science to encourage students to take actions that will help them enroll in and complete college. In some cases, the automated part of the program connected students with other resources that were already available to them or to a person who was part of the program (interventions are considered "low-touch" if they were low-cost despite the human help).

Text messaging campaigns provide reminders about key deadlines and tasks, often relating to college applications, financial aid, or administrative requirements. These include targeted outreach about FAFSA completion, summer transition tasks, and academic planning. Some programs, like Georgia State's chatbot, use non-generative artificial intelligence to provide personalized information and reminders and respond to basic student questions (while directing more complex questions to a human). Virtual coaching interventions attempted to help students set goals and develop study skills using online platforms.

Information-focused interventions aim to provide important information about college options or pricing. Several programs provide students with information about college options and costs, encouragement to apply to selective colleges, and (in one case) a guarantee of aid for which the student was likely already eligible; or they provided information about tax benefits for college-going. In the H&R Block FAFSA experiment, some participants only received information about college costs while others also received help completing the FAFSA during tax preparation.

Several programs combine light-touch outreach with connections to additional resources. Summer melt interventions, which focus on making sure that college-intending high school graduates follow through on their plan to start college, use text messages to encourage students to connect with counselors who could provide support. Some completion-focused programs encouraged students to file their FAFSA or attempt to connect students with existing campus-based academic and financial resources through automated messages.

Low-touch interventions thus span a spectrum from purely automated support to hybrid models that combine light-touch outreach with connections to more intensive services that are available to all students. While some focus entirely on information provision or behavioral nudges, others attempt to leverage technology to identify students who might benefit from additional support and encourage them to access existing resources. The range of approaches reflects ongoing efforts to develop scalable ways to address different barriers to college access and success, from complex administrative processes to information gaps about college options and costs.

4. FINDINGS FROM RELATED LITERATURES

The appendix excludes studies that do not fall into one of the three categories described above. However, there are some relevant findings from studies of policies and interventions that are not "college success" or "college access" programs per se but could improve those outcomes. These studies can help identify barriers that college access and completion interventions might address or approaches that might be effective. Also, it is important to put discussions of counseling and related interventions in the larger context of efforts to improve college access and success. This section therefore provides a brief summary of relevant findings from related literature.

We did not review studies of interventions that are primarily financial aid or scholarships, although many of the interventions we review have some financial aid component. We refer the reader to Deming and Dynarski (2010) and LaSota et al. (2024) for summaries of the effects of college costs and financial aid policy on access and completion.

4.1. DEVELOPMENTAL EDUCATION

Developmental education (DE) refers to coursework designed to help academically underprepared students reach college-level proficiency in math, reading, and writing. Students are often assigned to developmental courses based on a standardized testing like the ACT or a placement test, though many colleges have moved away from this approach since research showed these exams were over-identifying students for developmental education (Scott-Clayton 2018). Developmental requirements can range from a single course to lengthy sequences. A majority of community college students take at least one developmental course, and completion rates for such coursework are low. Students with developmental coursework needs have low degree completion rates, so improving developmental education has been an active area of research.

The corequisite approach to developmental education reform has been evaluated in several random-assignment studies. In the traditional prerequisite model, students must complete developmental courses before enrolling in college-level classes, while corequisite approaches allow students to take college-level courses simultaneously with support classes. Corequisite remediation often improves completion of college-level work in the targeted subject but does not have significant effects on persistence or completion (Miller et al. 2022; Logue, Douglas, and Watanabe-Rose 2019). One recent RCT did find that students assigned to college level statistics with corequisite support saw an increase in degree completion compared to students assigned to the typical prerequisite algebra course (Douglas, Logue, and Watanabe-Rose 2023). That study, as well as a study of a statewide reform in Tennessee (Ran and Lin 2022), suggests that alternatives to the standard algebra-to-calculus math sequence may benefit students in need of developmental math instruction.

Another approach to developmental education is to put students in "Learning Communities," where small cohorts of students co-enroll in two or more linked courses, at least one of which is a developmental English or math course. This facilitates scheduling as well as coordination and communication across instructors. In some Learning Communities, students also have access to additional tutoring and/or enhanced academic advising or participate in a college success course. A random-assignment evaluation of Learning Communities implemented in six community colleges generally found modest effects on progress in the subject targeted for developmental education (English or math) and little or no impact on academic progress in other subjects or in the long run. (See MDRC Synthesis of Findings report for more detail (Weiss, Visher, et al. 2015).)

One site (Kingsborough) implemented a more robust advising program in its learning communities and offered support for textbook purchases; that program also served students who were more likely to be enrolled full time

and be financially dependent on their parents. The Kingsborough program did increase degree completion but only for students without developmental English needs (Weiss, Mayer, et al. 2015).

The CUNY Start program, where students spend a semester in an intensive bridge program completing developmental requirements in reading, writing, and math before starting an associate's program, increased three-year degree completion by about 3 percentage points. The authors attribute this to the CUNY ASAP program, however, for which START participants were more likely to be eligible (Weiss et al. 2021).

Although developmental education interventions do not drive college completion, some show promise for achieving their immediate educational goals. For instance, corequisite remediation appears to help student pass college-level English or math even when it doesn't affect longer-term persistence. And, although the effects on completion were modest and plausibly attributable to ASAP participation, the CUNY Start program increased college readiness substantially. Overall, reforms to developmental education may be important for skill development, but they are so far not very promising as drivers of persistence and completion.

4.2. PROGRAMS THAT BRING COLLEGE-LEVEL COURSEWORK INTO HIGH SCHOOL

Giving high school students access to college-level coursework has emerged as a potential strategy for increasing college access and completion. During our expert consultations, participants emphasized that programs bringing college coursework into the high school experience warrant consideration alongside more traditional college access interventions. The experts noted that, similar to the counseling interventions that are the main focus of this review, these programs have an important information function. They help students learn about college, understand college expectations, and assess their fit for higher education, which can be difficult to learn without direct experience with college-level coursework.

Several approaches offer opportunities for students to be exposed to college-level coursework and earn college credits during high school, including Advanced Placement (AP) courses and dual enrollment programs. For AP, students take standardized college-level classes in high school and can earn college credit through end-of-course exams, but the course is operated as a typical high school class. Dual enrollment programs, which became popular in the 1990s, allow students to take actual college courses while still in high school, sometimes earning both high school and college credit simultaneously. Other approaches include career academies that integrate technical education with academic coursework and intensive STEM programs that provide structured exposure to college-level content.

Among these approaches, Early College High Schools—a comprehensive form of dual enrollment where all students pursue college credit or an associate degree alongside their high school diploma—have been evaluated through random assignment studies, providing the strongest causal evidence of effectiveness. These studies find positive effects on both college enrollment and degree completion. While dual enrollment programs more generally appear promising, much of the literature is correlational, making it difficult to draw strong causal conclusions about their effectiveness (Schaller et al. 2023). [4]

These programs could have some negative side effects. For instance, dual enrollment students often continue at their dual enrollment institution for college, which could lead to "undermatching" if students attend less selective institutions than their academic qualifications would permit. More fundamentally, when students receive both high school and college credit for the same coursework, it raises questions about the value of either the high school or the college course, though it is possible there are genuine efficiency gains from eliminating unnecessary repetition.

While these alternative high school models show promise for improving college access and completion, particularly the Early College approach with its strong experimental evidence base, they are not included in our systematic review since they fall outside our focus on counseling and related interventions. However, policymakers interested in improving college enrollment and completion should certainly consider approaches that more fundamentally alter the high school curriculum, including by bringing college courses into it, alongside the counseling and related interventions reviewed in this report.

4.3. PERFORMANCE-BASED SCHOLARSHIPS

Performance-based scholarships (PBS) condition a monetary reward on meeting specific academic benchmarks during college, such as maintaining a minimum GPA or completing a required number of credits. Unlike traditional merit aid that rewards past academic achievement, PBS programs typically target students who face completion challenges and structure payments to incentivize ongoing academic progress. These programs vary in design but share core features: incremental disbursement of monetary rewards tied to performance, flexibility in how students can use funds, and preservation of existing financial aid packages. Award amounts generally range from a few hundred to several thousand dollars per term, with payments often divided to encourage both enrollment and continued academic progress. In some cases, performance-based scholarships are offered together with additional academic support.

An MDRC demonstration project evaluated PBS programs at six diverse campuses, finding positive but modest impacts on persistence, credit accumulation, and degree completion (Mayer et al. 2015). When offered together, PBS's can increase take-up of advising and academic support services (Angrist, Lang, and Oreopoulos 2009; Brock and Richburg-Hayes 2006), and another study found that students offered a PBS spend more time studying (Barrow and Rouse 2018). A PBS program combined with enhanced advising implemented at the University of New Mexico increased five-year bachelor's degree completion by about 5 percentage points (Erwin et al. 2021). Overall, effects of PBS alone are small, but there is some evidence that performance-based payments could be a tool to incentivize take-up of services and help student learn study and time management skills. Conditioning too much aid on academic performance, as with satisfactory academic progress (SAP) requirements, could push students out of college, harming long run outcomes (Scott-Clayton and Schudde 2020), so it is important to balance the incentives to take up services and engage academically with adequate unconditional aid.

4.4. PROMISE PROGRAMS

Promise programs emerged in 2005 with the Kalamazoo Promise, which offered graduates of Kalamazoo Public Schools guaranteed free tuition at any public college or university in Michigan. Privately funded by anonymous donors, the program had dual goals: increasing college access and supporting broader economic development by attracting families to the district and strengthening the local economy. The program produced meaningful impacts, increasing four-year college enrollment by 7 percentage points and college completion by 12 percentage points after six years (Bartik, Hershbein, and Lachowska 2021).

Since then, other communities have adopted promise programs with varying designs (Bell 2021; Swanson and Ritter 2020; Page et al. 2019; Gurantz 2020; Daugherty and Gonzalez 2016; Carruthers and Fox 2016; Bifulco, Rubenstein, and Sohn 2019; Ash, Swanson, and Ritter 2021). These place-based scholarships aim to shape student behavior and outcomes well before college by providing early, clear information about college affordability. Their place-based nature allows programs to be marketed within communities and schools, which can encourage a college-going culture. Programs vary in several key dimensions: whether they provide "first-dollar" funding (before other financial aid) or "last-dollar" funding (after other aid is applied, such that students who have enough aid

from other sources do not benefit); whether aid covers just tuition or the full cost of attendance; which institutions students can attend; and what academic requirements students must meet to qualify and maintain eligibility (Bell 2021).

These design choices have important implications for both costs and equity. First-dollar programs like Kalamazoo and El Dorado are more expensive but provide larger benefits to lower-income students who already qualify for substantial federal and state aid (Bartik, Hershbein, and Lachowska 2021; Ash, Swanson, and Ritter 2021). Last-dollar programs that cover only tuition typically primarily benefit middle- and upper-income students because Pell Grants and other aid often covers tuition for low-income students, especially at community colleges (and lower-income students are more likely to attend community colleges). However, last-dollar programs that allow aid to be used for all costs of attendance, like the Pittsburgh Promise, can still meaningfully help low-income students who may have unmet need for living expenses even when tuition is covered by other aid (Iriti and Page 2018).

The choice of covered institutions—where students can use the Promise—influences enrollment patterns and student outcomes. Programs covering four-year public institutions including selective flagships tend to increase four-year college enrollment and completion. For instance, Kalamazoo's coverage of all state public institutions, including the University of Michigan, helped drive its positive effects on bachelor's degree completion (Bartik, Hershbein, and Lachowska 2021). In contrast, programs restricted to community colleges, like Tennessee Promise, can shift students from four-year to two-year institutions (Carruthers and Fox 2016). The effects of inducing students into public institutions depend on the quality of those institutions compared to the alternatives; the Massachusetts' Adams Scholarship (a scholarship that could only be used at in-state public colleges, not a promise program) harmed student outcomes by shifting them from private institutions to lower-quality public ones (Cohodes and Goodman 2014).

Promise programs appear to be an effective strategy for increasing college access and completion when well-designed, though impacts vary substantially across programs. Universal or near-universal first-dollar programs that provide substantial funding with minimal academic requirements and cover quality four-year institutions are likely to have the largest impacts. However, these programs are also the most expensive to implement. Last-dollar programs offer a more affordable alternative but may have more limited effects unless they cover the full cost of attendance. Due to their place-based nature, promise programs cannot easily be evaluated through randomized trials, and some evaluations may underestimate their full impact by missing broader effects on college-going culture and student motivation.

The evidence from promise programs has broader lessons for financial aid policy and other college access programs. Simpler promise programs with minimal academic requirements tend to show stronger results. Promise program studies, along with studies of Michigan's HAIL and Go Blue Guarantee programs, suggest that reducing uncertainty about college affordability early in high school can increase college enrollment and, if more students enroll in high-quality colleges, completion as well. Even when students might ultimately qualify for similar aid through traditional channels, the complexity and opacity of standard financial aid processes can discourage participation. Early guarantees may also raise aspirations and encourage academic effort throughout high school.

5. FINDINGS AND RECOMMENDATIONS

This section draws out conclusions and recommendations from the studies summarized in the appendix, as well as the literature discussed above. Few recommendations and conclusions are a "slam dunk"—the evidence is often at least somewhat equivocal, and policymakers and practitioners may face barriers to implementing some approaches. Likewise, researchers face important financial and logistical constraints that limit what they can study, and the evidence does not always point to a clear next step. For each conclusion or recommendation, therefore the caveats and evidence or argument against that finding or recommendation are also discussed.

5.1. MANY STUDIES HAVE SAMPLE SIZES TOO SMALL TO DRAW STRONG CONCLUSIONS

Before turning to the more substantive conclusions and recommendations, this section reviews a technical but important methodological consideration: statistical uncertainty.

A fairy large and methodologically high-quality literature evaluating college access and success interventions exists: we reviewed almost 100 studies covering at least 50 interventions. But in many cases, the sample sizes are too small to draw strong conclusions. It is not uncommon for studies to have a target sample size that is not achieved, or the study was a pilot and had a small sample size by design. How the effect of an intervention varied across subgroups—by gender, race, socioeconomic status, and academic background—is often also of great interest, but this requires even larger samples to understand. This is not necessarily the fault of researchers, who face resource and logistical limitations on how large their studies can be.

The fact that many estimated treatment effects have wide confidence intervals can lead program effectiveness to be under- or overstated, either in individual studies or when reading across the literature.

On the one hand, if sample sizes are small, the literature will be populated with studies that find no statistically significant effect of interventions on outcomes. This may be interpreted—by the authors or, more often, others—as evidence that an intervention does not work. And the existence of many such studies can create the impression that "nothing works." This phenomenon can bias conclusions in favor of more intensive and expensive interventions which are more likely to produce large treatment effects that can be detected with moderate sample sizes even if less-expensive interventions that produce more modest effects could be more cost-effective. However, because they are sometimes sufficiently cheap and easy to scale and can be evaluated using administrative data, "nudge" intervention studies are sometimes able to employ much larger sample sizes to detect small treatment effects.

In addition to p-values or other indicators of statistical significance, most studies report standard errors or confidence intervals that allow the reader to assess whether a statistically insignificant estimate means that the intervention did not produce substantively important effects on the outcome (a "precise null") or that the sample size was not large enough to say (which is common). However, a few studies take the approach of only reporting estimates that are statistically significant or do not report standard errors or confidence intervals. Many studies do not explicitly discuss whether statistically insignificant effects are "precise null" estimates or not, though some do. That is, studies (or others interpreting them) do not always distinguish between "the intervention was not effective" and "we have not learned if the intervention was effective from this study."

Funding studies with larger samples could help address this issue. But sometimes the constraint is logistical, not financial: there simply are not enough students to enroll in the study. And there are diminishing marginal returns

to additional sample size in terms of the effect size that can be detected, so the samples required to detect smaller effects can be quite large.

One way to address the many-small-studies problem is to average estimates from smaller studies using meta-analytic techniques to improve statistical power. While a meta-analytic approach has been used to help identify which intervention components are most predictive of larger treatment effects (Weiss, Bloom, and Singh 2023), the power of this approach in this setting is limited by the heterogeneity of the interventions themselves. Different studies are not estimating the same "treatment effect" due to differences in treatments, populations served, and settings.

On the flip side, publication incentives or a desire among researchers and intervention developers to show that an intervention works can lead to cherry-picking or over-interpretation of results. This can lead to an overly optimistic sense of how promising interventions are. For example, studies may report or highlight outcomes or sub-groups where effects are larger or statistically significant. Such reporting is not necessarily bad, as such estimates can point to hypotheses that should be explored in additional work or be taken together with findings from other studies to draw broader conclusions.

Several methods can reduce cherry-picking and help ensure that statistical inferences are valid, including the identification of sub-groups and outcomes of interest in advance and multiple hypothesis adjustments. Some studies pre-specify their analysis, and many studies follow the IES What Works Clearinghouse guidelines related to pre-specification and handling statistical inference when testing multiple hypotheses. These practices have become more common over time.

But it may not be the authors who do the overly optimistic interpreting: The publication process often favors positive significant findings, and stakeholders naturally put more effort into promoting the most optimistic findings. Because fielding and evaluating even moderately intensive interventions requires significant resources—and grant funding—researchers are likely to make their findings public, regardless of what they show. Therefore, publication bias is not likely to be a major issue for those types of interventions. The "file drawer" problem is more likely to be an issue for low-touch interventions, which entail lower time and financial costs, so researchers may be less likely to exert the effort to write up such findings or journals may be less interested in publishing them.

In our review, we paid close attention to these issues. First, we took account of the statistical uncertainty associated with the estimates, especially for insignificant estimates. Deciding whether an estimate that is not statistically significant is a "precise null" requires a judgement about how large an effect would need to be to be of substantive or policy interest. We do not apply a hard and fast rule, but we use cost-effectiveness as a guide and discuss the precision of the estimates as relevant—the cheaper the intervention, the smaller the substantively important effect size.

To guard against cherry-picking, our rubric for summarizing studies prioritized reporting on average treatment effects on college enrollment and persistence outcomes (for access studies) and GPA, credits earned, persistence, and completion (for completion studies). We also noted whether the study mentions a pre-analysis plan, specification of confirmatory and exploratory hypotheses, or adjustment for multiple hypotheses. Again, we did not follow a rigid rule about which estimates or conclusions we consider. Some studies did not target any or all of these outcomes; for example, an access study might target college selectivity rather than enrollment. And subgroup and exploratory analyses can yield important insights, especially when combined across interventions. We therefore began with the average treatment effects for the full sample but also considered the full set of findings.

Finally, while we prioritized well-identified empirical estimates of treatment effects in our conclusions, we also consider whether a particular intervention or approach has a strong theoretical underpinning (which most do, or the authors would not be studying them) or is supported by findings in related literatures.

5.2. LOOK FOR WAYS TO SIMPLIFY PROCESSES AND REMOVE BARRIERS

Rather than developing new interventions to help students navigate complex processes and requirements, institutions and policymakers should prioritize removing barriers and simplifying procedures. This was perhaps the most frequent point raised in the expert meetings.

This recommendation has a strong theoretical basis. The more complex tasks someone has to complete successfully, the more likely they will fail at least once, getting off-track for college enrollment or completion. This type of reform is difficult to study using random-assignment methods, and there is little direct evidence on the effects of simplification. Studies showing that addressing a specific stumbling block increases enrollment provide circumstantial support for this approach. For example, removing the FAFSA barrier by filling out the form for a student or removing the ACT/SAT-taking barrier by making the test universal both increase enrollment (Hyman 2017; Bettinger et al. 2012). This suggests that removing those seemingly small barriers can matter. There has been significant policy interest and action to smooth transfer pathways (Wilkins 2022), but successfully completing a bachelor's degree via a transfer pathway remains quite rare (Velasco et al. 2024). One quasi-experimental study of California's Associate's Degree for Transfer (ADT) found modest effects (Baker, Friedmann, and Kurlaender 2023), though arguably the system is still very complicated even with this simplification.

Reducing complexity may limit students' autonomy and reduce choice to some extent. For example, institutions might reduce the number of majors or employ (hopefully smart) defaults. This could be a worthwhile trade-off if enough options remain and simplification reduces the number and complexity of decisions students have to make, freeing up mental bandwidth and allowing them to focus on their studies (Mullainathan and Shafir 2013).

However, implementing such changes is challenging because it requires action at the institutional level or even state and federal policy changes. While there is broad agreement among experts about the potential benefits of simplification, institutional inertia and complex governance structures can make such reforms difficult to achieve. In addition, each bit of complexity arose for some reason. In some cases, complex requirements may be purposefully designed to keep the number of students who access services from getting too high and undermining the financial viability of the program. Whatever their reason for being, once such barriers exist, they are often expensive to remove.

More research is needed to understand the institutional barriers to implementing these types of reforms, and creative thinking about policy changes could help identify practical paths forward. While randomized controlled trials may not be feasible for studying this type of initiative, the potential impact of systematic simplification efforts could be substantial and deserves serious consideration from institutional leaders, policymakers, and researchers.

5.3. EFFECTS OF ADVISING PROGRAMS ARE TYPICALLY POSITIVE AND MODEST

Many of the interventions in the advisor and navigator category have effects on enrollment or completion in the 3 to 10 percentage point range (or they are too imprecise to reject estimates in this range). Some programs that combine financial aid and enhanced advising that have been evaluated quasi-experimentally also have modest impacts (i.e., Longhorn Scholars, Carolina Covenant). A study of high school counselors showed that the value-added of counselors varies considerably, again suggesting that advising can matter (Mulhern 2023).

Some form of advising is clearly necessary, and the evidence suggests it probably helps. Advising programs that are not too expensive can easily pass a cost-benefit test, even if they don't have large effects. Some participants in the expert meetings were optimistic that new technologies like generative AI and using data to better target services could make advising better and cheaper (or at least they were curious to find out), but the existing direct evidence on this is admittedly mixed. Still, given the available evidence and the strong logic that advising is needed, additional research on how best to implement advising (possibly using emerging technologies) is warranted.

5.4. FOCUS ON WHAT CAN BE IMPLEMENTED WELL AND SUSTAINED

Applying to college is complicated, and completing it is even more so. All institutions are complex, and any set of requirements is at least a little bit difficult to navigate. Students of all backgrounds will have academic and non-academic concerns that need to be addressed. Arguably, the evidence does not clearly identify specific components or practices that are most important, though some practices are promising, as discussed below. Given the state of the evidence and the considerations outlined in the rest of this section, putting considerable weight on what program components an institution thinks it can implement well—and sustain—given their institutional strengths and constraints makes sense. This may look different depending on the context.

The evidence suggests that, broadly, interventions that provide more support across domains tend to improve outcomes more. The ASAP/ACE model is the approach that has most consistently improved completion both for different types of students and in varied settings (Miller and Weiss 2022; Scuello and Strumbos 2024). Early findings from Viking ROADS, an ASAP replication in Westchester County, are also promising (Dai, Sommo, and O'Donoghue 2022). Some other comprehensive programs designed to help students complete local-labor-market-aligned degrees or certificates have also been successful (e.g., Project Quest, VIDA). These comprehensive programs also have a strong logic: Students might veer off-track for a variety of reasons, and programs that offer services and support across domains are be able to address a broader range of issues. Also, one type of service may work better in the presence of other high-quality services. Or it could be that, by taking care of a broad range of student concerns, the program gives students the bandwidth to focus on their studies.

Institutions that expect they can marshal the financial and other resources to develop and sustain comprehensive programs should strongly consider taking that approach. Institutions can work with the CUNY ASAP/ACE National Replication Collaborative and draw on other resources to help develop student success interventions for their context (Ratledge and Wavelet 2021; "For Policymakers and Advocates – The City University of New York," n.d.). However, the evidence does not support an exclusive focus on these comprehensive approaches for several reasons.

First, more comprehensive programs are more expensive. Less comprehensive, less expensive programs could be more cost effective even if they produce smaller gains, as explained further in the next section. Many interventions in the "advisor or navigator" category generate effects on intermediate outcomes but not completion or produce positive but not statistically significant effects; see the previous finding regarding advising programs.

Second, there is not strong evidence for complementarities between intervention components (nor is their strong evidence against). Such complementarities, whereby certain components only work or work better in the presence of other components, would suggest that the "whole is greater than the sum of the parts." This would be a reason to favor more comprehensive over one-component-at-a time approaches. The theory of action for complementarities is persuasive, and in some cases quite strong. For example, a program that refers students to tutoring or on-campus services is unlikely to be effective if those services are unavailable or of low quality. It would also not be surprising if supporting students across multiple domains helped them feel connected to the program or college in ways that made each component more effective.

However, testing for complementarities empirically is difficult, often requiring unrealistically large sample sizes, and few studies are able to do it. A couple of studies do find some complementarity between performance-based or other scholarships and academic support. For example, a study of the Carolina Covenant concludes that the scholarship was not effective before extra on-campus support was added. However, this may not be an interactive effect but rather simply the direct effect of the support. Another study finds that neither financial incentives nor near-peer advising impacted grades individually, but, for women, both together did (Angrist, Lang, and Oreopoulos 2009). However, this finding only applied to women and a modified version of this intervention did not have the same findings (Angrist, Oreopoulos, and Williams 2014). Overall, the direct empirical support for complementarities is weak. Again, this is not due to a failing of research in this area but rather due to the inherent difficulty designing studies to test for complementarities.[5]

Third, many studies report challenges implementing interventions with fidelity in new settings due to a wide range of factors, including difficulty finding and training enough staff or coordinating a new program with existing advising infrastructure. For example, MAAPS is a technology enhanced advising program developed by Georgia State. The program was adopted and evaluated at eleven institutions, but positive impacts were only found for the program in the original Georgia State setting and only for secondary outcomes. The implementation study found low fidelity of implementation and cited difficulties layering a new advising intervention on top of existing approaches, among other challenges (Rossman et al. 2021).

The SUCCESS study also found evidence that treatment effects varied across the seven campuses where it was evaluated, with larger effects in settings where implementation was more faithful to the original design. The intervention took place during the COVID-19 disruption, so institutions were forced to modify the program model, and the results might be different in the absence of the pandemic.

While research does not provide direct evidence for this and there is typically some adaptation when interventions are implemented in new environments, it is possible that institutions miss opportunities to make structural changes to their requirements, integrate systems, and get buy-in when they adopt a "ready -made" intervention designed elsewhere. That is, the process of developing the intervention locally may surface issues that can be addressed in other ways or facilitate cooperation across campus, increasing the chances the intervention is well-implemented and ultimately successful.

Finally, even successful programs can be difficult to sustain if they are expensive. For example, the Ohio ASAP replication was significantly less expensive than the CUNY program and similarly effective, a major achievement.[6] But the program was still expensive relative to the available resources, and two of the Ohio campuses that successfully piloted ASAP had to end the program for lack of financial support (Miller et al. 2020).

Given these considerations, focusing on intervention components or approaches that can be implemented well given logistical and financial constraints makes sense.

However, in the expert discussions, several people raised an important issue about less-than-comprehensive college success programs. They suggested that many institutions, especially community colleges, likely have a good idea of what would work to improve outcomes for their students, but they simply do not have the resources to provide it. Marginal improvements to advising or other component-at-a-time reforms may help but don't "move the needle" to make the chance of completion reasonably high.

This raises the question: At what point are completion rates low enough that a course of study is not worth students' time? How can the number of students who are worse off for having attempted postsecondary education

be minimized? A wide range of factors surely contribute to poor outcomes, but some institutions or programs may simply not offer enough upside for students in the absence of more comprehensive support, which in many cases they cannot afford to provide. Encouraging students from disadvantaged backgrounds (or any student) to enroll in a program where their likelihood of completing is very low is arguably not fair to them.[7] This is another argument for more comprehensive approaches, even if that means concentrating the available resources on fewer students, though this would implicate important trade-offs with access (which are beyond the scope of this report). The experts also noted that residential four-year colleges often do offer comprehensive student support, but it is more integrated into academic and residential life rather than a "program" or "intervention." Students at community colleges, who are on average less academically prepared and come from lower-income families, do not typically get this type of support outside of a targeted program.

5.5. INCONSISTENT AND INCOMPLETE APPROACHES TO COST ANALYSIS MAKE COMPARING ACROSS INTERVENTIONS DIFFICULT

More intensive college completion interventions tend to have larger effects, though there are counterexamples in both directions. A meta-analysis of MDRC interventions showed that interventions that had more components had larger effects (Weiss, Bloom, and Singh 2023). This is consistent with our own reading of the broader literature.

Even a conclusion as simple as "bigger interventions do more" is not straightforward, however. To start, judging the intensity of interventions is not always easy. An intervention may have many components on paper but low take-up of some or all the services. Data on treatment-control differences in service use (the "treatment contrast") are difficult to collect and often not available. The cost of an intervention would be another natural way to assess intensity, but many studies do not report this, and the approach to estimating costs is not consistent across studies.

A cost-benefit analysis would account for all resource changes and benefits, including long-term returns to education, over participants' lifetimes as well as "spillover" benefits. Direct measurement of these benefits would require expensive, logistically challenging long-term follow-up. Some studies work around this by combining intervention impacts with external estimates of returns to education, though the returns to intervention-induced completion could be different. While few studies attempt to conduct a cost-benefit analysis, many report on cost effectiveness or, more often, numbers that could be interpreted as such but have some limitations.

As discussed above, the completion interventions that show the largest effects are intensive and expensive; they usually have multiple components that collectively address multiple barriers that students might face. But many less-intensive completion interventions have moderate effects or at least the evaluation cannot rule them out given the sample sizes, so could be more cost-effective than more expensive comprehensive interventions.

For example, consider CUNY ASAP, widely regarded as one of the most successful college completion interventions. While the per student cost ($16,300) was higher for participants in the intervention compared to control, the cost per degree awarded was lower (Scrivener et al. 2015). However, this finding does not necessarily demonstrate cost-effectiveness compared to alternative approaches to increasing completion.[8] To compare to other interventions, we need to know the additional cost for each unit of improvement in completion or other targeted outcome.[9]

A comparison with the InsideTrack coaching intervention evaluated by Bettinger and Baker (2014) illustrates this complexity. The original CUNY ASAP program cost about $900 per participant for each percentage point increase in completion (spending $16,300 per student for an 18 percentage point gain), while InsideTrack cost

about $250 per participant for each percentage point increase in completion (spending $1,000 per student for a 4 percentage point gain). This suggests that InsideTrack is more cost-effective, but two complications arise. First, the estimated effect of InsideTrack was only marginally statistically significant, so there is reasonable uncertainty about whether it is effective at all. Given its relatively low cost, it could be as cost-effective as ASAP with an even smaller effect than that marginally significant estimate, but a study able to detect such small effects would need a very large sample.

Second, the cost calculations differ between studies (and more generally across the literature). The ASAP cost analysis included all costs to the institution, including indirect costs from additional course-taking. InsideTrack's estimate only covered direct coaching costs, excluding costs of additional credits attempted or other services used as a result of participation in InsideTrack. This difference partly reflects their institutional contexts—additional student engagement represented costs in ASAP's public community college setting but potential revenue for the for-profit colleges in the InsideTrack study. (It is important to note that the cost of CUNY ASAP declined over time, and the Ohio implementation was much less expensive; nevertheless, the point remains.)

While metrics like program costs or institutional costs per percentage point improvement in completion are valuable for institutions making resource allocation decisions, they typically don't capture the full social costs or benefits that should inform state and federal policy decisions. The social cost of an intervention is the program cost less transfers—it represents the additional resources used. (Ideally, the time and hassle costs for students would also be accounted for, though we did not review any studies that did so explicitly.) Depending on the context, these broader social costs could be either higher or lower than reported direct costs.

Consider Bottom Line (BL), a counseling program that starts in high school: The authors estimate that BL increased bachelor's completion by 1 percentage point for every $500 in spending on the program, noting that "[t]he marginal degrees generated by BL advising appear to be larger per direct dollar spent than that of any large financial aid program that has been rigorously evaluated," (Barr and Castleman 2021).

While the authors are clear that they are referring to direct costs, this comparison illustrates how focusing only on direct program costs could be misleading. For comparison, the evaluation of the Buffett Scholars scholarship program explicitly distinguishes between direct costs to the funder (over $30,000 per participant) and economic/social costs.[10] They estimate a social cost of about $2,400 per participant, reflecting the fact that some Buffett Scholars were induced into higher-spending colleges. The lower economic cost reflects the fact that most of the scholarship spending is a transfer to participants, who spend less of their own money on college than they otherwise would have, rather than additional resource use.

Bottom Line appears to increase completion by inducing students to attend higher-quality colleges (a promising strategy, as discussed more below). While this mechanism for improving completion is similar to the Buffett Scholars program, the methods of calculating costs differs in the two studies making the comparison difficult to interpret.

Distinguishing between transfers and real resource costs may also affect the ASAP-InsideTrack comparison since some portion of the direct cost of ASAP (such as the transportation benefit) is most likely a transfer that would not be included in the social cost, whereas nearly all the cost of InsideTrack was for the coaches, which represents a resource cost.

This is not to say that the direct cost estimates in the studies described above or in other studies are incorrect. The direct cost of a program is highly relevant for institutions or donors with a fixed budget hoping to affect a particular outcome, but it is often appropriate to consider indirect costs (and benefits) or social costs in addition

to direct costs. This complexity in conceptualizing and measuring both costs and benefits means that seemingly straightforward comparisons of cost-effectiveness across interventions may rest on incomplete or incomparable cost calculations.

While more comprehensive interventions frequently show bigger effects, determining their relative value for the money spent requires careful attention to both statistical precision and how costs and benefits are counted.

5.6. STRATEGIES THAT INDUCE STUDENTS INTO HIGHER-QUALITY INSTITUTIONS ARE PROMISING, BUT CAREFUL THINKING ABOUT COST-EFFECTIVENESS AND SCALING IS NEEDED

Several studies demonstrate a causal effect of attending more selective, higher-quality institutions on outcomes such as completion and wages, with particularly strong effects for disadvantaged students (Dale and Krueger 2014; Bleemer 2024; Andrews, Imberman, and Lovenheim 2020; Zimmerman 2014) or negative effects when students are induced to attend lower-quality institutions (Cohodes and Goodman 2014). Both information interventions and more-intensive advising programs have successfully helped students access these higher-quality institutions, and this is a promising strategy to improve completion for students from disadvantaged backgrounds. However, careful consideration of the full social cost associated with attending a higher-quality institution, how institutions respond, and whether and how such interventions could be scaled is needed.

Low-cost information interventions can successfully induce students into higher-quality institutions when perceived rather than actual financial barriers are the primary constraint. This is more often the situation for high-achieving, low-income students because many of them could have access to high-quality selective colleges that offer generous financial aid, but such students often do not know the true net cost of college and do not apply to highly resourced selective colleges (Hoxby and Avery 2013). The Expanding College Opportunities (ECO) intervention attempted to address this by providing information about net prices at selective colleges to high-achieving, low-income students (Hoxby and Turner 2013). Similarly, the HAIL scholarship sent high-achieving, low-income students information offering them a branded scholarship that guaranteed four years of free tuition at the University of Michigan; most students offered HAIL would have qualified for similar aid even without the program (Dynarski et al. 2021). Both ECO and HAIL were relatively inexpensive to implement and successfully shifted enrollment to higher-quality institutions, though neither has long-term outcome data yet. It's also important to note that a larger-scale study of an intervention similar to ECO found no effects, suggesting information alone may not reliably work at scale (Gurantz et al. 2019).

Two more intensive advising programs have also successfully directed students from a somewhat broader range of academic backgrounds toward higher-quality institutions. Bottom Line explicitly encourages participants to consider colleges identified as high-quality based on graduation rates, earnings, and loan default rates (partner colleges); and many students are induced by the program to enroll in those institutions. This approach increased four-year college enrollment by 9.1 percentage points and six-year graduation rates by 9.6 percentage points, with evidence suggesting the shift to higher-quality institutions was a key mechanism for the increase in completion (Barr and Castleman 2021).

Similarly, College Forward's individualized advising program, which starts during the junior year and continues into college regardless of where students enroll, increased four-year college enrollment by 7.4 percentage points and five-year bachelor's degree completion by 6.5 percentage points. Again, treated students attended institutions with significantly higher graduation rates, earnings, and average SAT scores, so moving students into higher-quality institutions is the likely mechanism for the completion effects (Castleman, Deutschlander, and Lohner 2024).[11]

The direct costs of these advising interventions varied, from relatively inexpensive information programs to advising that costs around $4,000 per student. However, focusing solely on program costs ignores a crucial component: as noted above, when students are induced into higher-quality institutions, they benefit from greater institutional spending on instruction and student services. This additional resource use represents a real social cost that should be considered in evaluating overall cost-effectiveness.

What that social cost is depends on how institutions respond. If they increase enrollment to accommodate the students induced to enroll by the program, institutions (or the state) have additional costs that should be accounted for—in addition to the direct costs to the program provider—in a social cost-effectiveness analysis. (That cost also depends on where that student would have enrolled instead.) If the institution has a fixed budget for financial aid, another lower-income student may be displaced. If a higher-income student is displaced, that may represent an efficiency gain since more disadvantaged students often benefit more from access to high-quality institutions than higher-income students (Black, Denning, and Rothstein 2023; Bleemer 2024). However, the institution needs a larger financial aid budget to realize that outcome. These issues would become more acute if these programs operated at a larger scale.

This raises the important question of how high-quality institutions achieve high graduation rates. Selection is surely part of the story; they enroll students who are academically better-prepared so more likely to graduate regardless of which college they attend. But better student support services (and possibly instruction) probably also contribute, which brings us full-circle to the topic at hand: what is the best way to support students so they can complete college?

Overall, encouraging students to attend the highest quality institution for which they are academically eligible is a promising strategy, but this strategy only works for students with access to high-quality, affordable options. That varies by location, income, and academic achievement. Because the most selective institutions also have the most resources to spend on instruction, support services, and financial aid, high-achieving students have the most options; how many students could benefit is an open question. In any case, understanding which students, if any, are displaced when a program induces disadvantaged students into higher-quality institutions is key. In particular, are program participants simply displacing low-income students who did not have access to the program?

These approaches should be coupled with a plan to accommodate more lower-income students at high quality institutions. Institutional concerns—beyond resources—about admitting more academically marginal students may also need to be addressed; for example, institutions may worry that a decline in their graduation rate would impact their reputation or ratings.

5.7. EFFECTS OF INFORMATION AND SUPPORT FOR FAFSA ARE LIMITED BY UNDERLYING COMPLEXITY AND FINANCIAL AID AVAILABILITY

Complexity and lack of transparency are pervasive problems in college access and completion. The complexity of FAFSA, in particular, is a long-standing policy concern. Several interventions have successfully targeted FAFSA completion. But ultimately, the efficacy of FAFSA information and support interventions are limited by the underlying complexity of the financial aid system.

The influential H&R Block study demonstrated that providing information alone was insufficient—successful interventions needed to actually complete the FAFSA form with families. While subsequent policy changes have attempted to address these challenges through mechanisms like moving FAFSA online, the IRS data retrieval tool, and the use of prior-prior year income, implementation has been uneven, and financial aid complexity remains

a barrier. The recent FAFSA Simplification Act of 2020 aimed to further streamline the process (Levine and Jill 2023). Though its rollout for 2024-25 encountered significant challenges that dramatically reduced FAFSA completion rates (Meyer 2024), hopefully this simplification will yield some benefits in the future. Still, lack of transparency in college pricing and financial aid complexity are far from a solved problem.

Evidence from Michigan's HAIL scholarship and Go Blue Guarantee programs suggests that guarantee programs can be more effective than telling students tuition will be free only after they verify income and assets, at least for high-achieving students deciding between more and less selective institutions (Dynarski et al. 2021). Evidence from the Kalamazoo and other promise programs also point to the value of clear, early information about college costs. However, providing aid guarantees without income verification could be expensive, and lower-income students would still need to complete FAFSA to access additional financial aid to cover living expenses.

A promising policy direction may be moving FAFSA completion earlier in the senior year, allowing students to receive concrete aid information before making college application decisions. Receiving this information much earlier in the process (as in some promise programs) would be even better. States could develop procedures to provide definitive cost information for public institutions in the state earlier in the college timeline, ideally before application deadlines. Taking advantage of other data states have on students' incomes, as Washington state did with a recently adopted policy that guarantees free tuition for students on food assistance (Deng 2024), is a promising approach.

While moving the entire financial aid process to junior year might require federal policy changes, states could explore ways to provide preliminary information earlier, such as through aid calculators or provisional determinations, while maintaining flexibility for students who complete FAFSA later. This approach could be particularly powerful when combined with direct admissions systems so that—without submitting applications—students receive early information both about where they can be admitted and how much they will have to pay (Odle and Delaney 2022; 2023).

Whether the specific approach described above turns out to be a viable path or not, policymakers, particularly at the state level, should look for ways to provide students with clear and credible signals that college can be affordable for them if they meet the academic requirements to be admitted. Of course, this will only work in settings where affordable options are actually available.

An important caveat for aid guarantee or pricing transparency policies is that if they are successful at increasing enrollment of low-income students, the financial aid budget will need to increase as well. The HAIL study found that students induced into the University of Michigan by the program received about the same amount of financial aid as they would have in the absence of the program if they had enrolled in the University of Michigan. But, because of the program, more low-income students enrolled, and a larger financial aid budget was needed. Of course, this was the goal not only of the program but also of the university and the state of Michigan, but to be successful, efforts to bring more low-income students into any or a particular institution need to have a plan to provide and sustain additional financial aid.

5.8. PROGRAMS SERVING POPULATIONS WITHOUT ALTERNATIVE SOURCES OF SUPPORT HAVE LARGER EFFECTS, NEED MORE DATA ON SERVICE CONTRAST

College access programs tend to have larger effects when they serve populations who lack alternative sources of support. This is probably also true for college completion interventions, but there is less direct evidence. Interventions will be more cost-effective if they target these populations, but such targeting may be impractical and can

lead to fragmented service provision and low take-up. The question of whether a program represents additional support for the student or crowds out other sources of support is also critical for interpreting impact estimates.

Several evaluations of access programs support this idea. Effects of the New Hampshire coaching intervention, which helped participants complete college applications, were concentrated among students who did not have parental help with applications (Carrell and Sacerdote 2017). (The New Hampshire program also targeted students who high school counselors thought were college ready but had not taken steps to apply deep into senior year, an approach to targeting that also serves to reduce spending on students who would have completed college applications without the program.) Similarly, V-SOURCE, a virtual advising program, produced larger effects on how much participants felt they were supported during the college application process among students with lower academic achievement, likely because these students were not otherwise receiving guidance. However, while the additional support translated to more college applications, it did not increase enrollment. This evidence suggests potential efficiency gains from targeting interventions toward students lacking other support (Phillips and Reber 2022).

However, targeting involves important tradeoffs. While directing resources toward students with the least access to alternative support may maximize program impact per dollar spent, it could lead to fragmented programming over time, which can inhibit take-up and add complexity. Moreover, some targeting criteria may be impractical to implement—for instance, even if an intervention is known to have different effects based on gender or race, targeting based on those characteristics may not be practical (or legal in some settings). The results from an intervention that used regular classroom teachers to deliver advising suggest it would be effective to target it to students who qualify for Free and Reduced Price Lunch (FRPL) (Hyman 2023), but that might be stigmatizing or difficult to implement in school.

The relationship between program impacts and alternative sources of support also has important implications for research design and interpretation. The study of Advise TX illustrates this issue. The evaluation found that program impacts declined in later cohorts, which they speculate could be because more control schools adopted the program or added professional counseling services (Bettinger and Evans 2019). This type of change in the control condition makes it harder to detect program impacts even when the program remains valuable. This phenomenon has been identified in the early childhood education (ECE) literature: The estimated impacts of early childhood programs such as Head Start are smaller when the next-best-alternative, which is increasingly a different government-funded ECE program, is higher-quality (Kline and Walters 2016). But this does not mean that the value of government-funded preschool has declined.

Whenever possible, studies should document the counterfactual condition, including participants' access to alternative sources of support. Data on the "treatment contrast" provides crucial context for understanding effect sizes and comparing across studies, though gathering data on alternative support is challenging and expensive (which is why many studies don't do it). Researchers (and consumers of research) should also consider how the landscape of available supports evolves over time. As awareness of college access challenges grows and more organizations develop support programs, apparent declines in program effectiveness may reflect increased availability of alternatives rather than reduced program quality. This substitution means that each individual program is less effective because alternatives are available, but this does not mean that all programs can stop operating without adverse consequences.

5.9. THE RELATIONSHIP BETWEEN PROGRAM INTENSITY AND IMPACT IS LESS CLEAR FOR ACCESS INTERVENTIONS

For college access interventions, it is less clear that impact scales with intensity. Upward Bound, which serves students for several years in high school, is one of the more intensive access interventions we reviewed. The random-assignment evaluation of Upward Bound is the subject of some controversy, but the effect on postsecondary enrollment was probably not larger than several percentage points and is not robust across settings. This effect appears to be smaller than several much less intensive programs, such as LifeAfterHighSchool and the New Hampshire coaching program, both of which were more narrowly focused on helping students with college applications and increased college enrollment by about 5 to 6 percentage points.[12] Notably, the New Hampshire program only affected women, which the authors attribute to men in the study having better job opportunities without a college education and thus (correctly) perceiving lower returns to education.

Low-touch or nudge interventions hold more promise for improving college access compared to completion (even though some replications have been disappointing, and there is some concern about publication bias). There may be a pool of students who are primarily held back by missing key pieces of information, such as FAFSA deadlines, SAT registration procedures, or guidance on identifying suitable colleges. Providing that information could then have important impacts on enrollment. While information alone might not be sufficient for some students, targeted hands-on assistance—for example, with FAFSA completion—could unlock college access. Such assistance, while more expensive than pure information or nudge interventions, remains relatively cheap compared to more comprehensive advising, especially when well-targeted to students who would otherwise lack support.

Some relatively low-intensity interventions have shown substantial effects in the access space, notably the H&R Block FAFSA intervention, some Summer Melt interventions, Expanding College Opportunities (ECO), LifeAfterHighSchool, and the New Hampshire coaching intervention. With the exception of ECO, which is primarily an information intervention, successful low-intensity interventions focus on "getting the job done," that is, making sure FAFSA, applications, or other paperwork are completed. One might worry that students induced into college by such an intervention would only be derailed by another obstacle once enrolled, but this does not appear to be the case; typically, students induced into college by these interventions persist at similar rates as the average student.

The contrast with completion interventions is instructive. This pattern may reflect a fundamental difference between access and completion challenges: While a single administrative hurdle or lack of information might block initial access to college, completion typically involves navigating multiple similar hurdles over time. For completion, ongoing advising appears necessary because more students face a series of potential obstacles rather than a single, decisive barrier. This helps explain why more comprehensive, sustained interventions tend to show stronger effects for completion, while lighter-touch approaches can sometimes be effective for access.

An important caveat to this conclusion is that a number of low-touch interventions haven't been effective at scale or in replications. On balance, while enthusiasm for nudge interventions is tempered relative to a decade ago, relatively low-touch approaches to access that focus on "getting the job done" still have promise. And the evidence does continue to support the limited use of nudges and information, as discussed further below.

5.10. NUDGES AND OTHER LOW-TOUCH APPROACHES HAVE THEIR PLACE

With few exceptions, "nudges" and information alone do not have substantial effects on college enrollment, persistence, or completion. However, the research does suggest they can play a valuable role when strategically deployed as part of a larger intervention or standard advising.

As noted above, pure messaging interventions are quite cheap and could theoretically be cost effective at scale even with quite small effects, but there are reasons not to move forward with such interventions. First, while in theory institutions or organizations could adopt multiple cost-effective interventions to achieve larger effects in total, in practice, the number of "interventions" they could reasonably deploy is limited. In addition, while there does not appear to be direct evidence from education interventions, it stands to reason that students can only engage with so many messages and may tune everything out if they are receiving too many. Further, the evidence suggests that messages from a trusted organization that the student knows (such as their own institution) work better, so those organizations need to be especially careful that they do not cause students to tune out. For these reasons, it likely makes sense for institutions to only adopt interventions with at least moderate effect sizes, even if cheaper interventions have lower cost per change in enrollment or completion.

Although nudge and reminder interventions are not that promising on their own, evidence suggests that these low-touch approaches can be a useful component of a larger intervention or incorporated into business-as-usual advising. Nudges and reminders work best for concrete, time-bounded tasks, with clear consequences for (non)completion (Meyer and Page 2022). For example, reminding students that they won't be able to register for classes if they don't take action to clear a registration hold and providing instructions on how to do that is more effective than reminding students to attend a career fair (Page, Lee, and Gehlbach 2020). Informational nudges or reminders can work when students don't already have the right information, though it may be difficult to know in advance what information students already understand (Marx and Turner 2019).

While they can only change behavior so much, low-touch coaching encouraging students to set task-based (rather than outcome-based) goals shows some promise (Clark et al. 2020). Carrell and Kurlaender (2023) studied an intervention where faculty in introductory classes sent personalized emails to students telling them how they were doing in the class, suggesting how they could improve, and encouraging them to ask for help. For students from historically under-represented racial and ethnic backgrounds, the intervention not only improved the grade in that course but also increased persistence and graduation (though the latter was only marginally statistically significant). Again, this shows that low-touch interventions can matter (and also that interventions involving faculty may be underexplored), but more research is needed to identify if such an approach could work at scale.

Several programs do leverage technology to target and personalize advising support. While results from these initiatives have been mixed, the studies do not always provide detail on the content of the messages; and it would be difficult to separate the effects of the personalized messaging from other aspects of the intervention. Further research could help clarify how to optimize the integration of nudge components within broader support systems—particularly as communication technologies—and students' engagement with them continue to evolve.

5.11. INCENTIVES TO PROMOTE SERVICE TAKE-UP MAY BE IMPORTANT, BUT MORE WORK ON TAKE-UP IS NEEDED

Take-up of support services is often low for both access and completion interventions, which is frequently cited as a reason why interventions fail to improve student outcomes. Understanding and addressing low take-up is complex, as it could reflect either implementation challenges or more fundamental issues with program design. When students do not use available services, program staff should consider the possibility that students do not find the services valuable. However, even high-quality services may see low participation if students do not recognize their potential benefits or make short-sighted decisions about investing in academic support. Institutions and access and completion program providers should consider incentivizing program use.

Many successful interventions include mechanisms to require or incentivize students to meet with advisors and use other support services. For example, ASAP provided MetroCards (or gas/food cards in Ohio) when students

met with their advisors and satisfied other program requirements. ACE similarly required participants to meet with their advisors regularly. The incentives might work by directly motivating participation, by helping advisors build relationships with students as they deliver the promised rewards, or the payment/reward itself might matter (by ensuring the student has transportation, for example). However, because these successful programs included multiple components, it is difficult to isolate the specific role of these incentives in promoting service take-up and making the intervention successful.

Some other evidence points to the possibility that incentivizing service take-up can work. For example, the Opening Doors Chaffey intervention showed stronger take-up and impact when participation was required, though neither version of the program affected completion (Weiss et al. 2011). Incentives for service take-up in the College-Point Advising Plus access intervention did increase service use and made students feel positively towards their advisors, but the effects on college enrollment outcomes were limited (Bird and Castleman 2024).

The design of participation requirements and incentives requires careful consideration of potential unintended consequences. Paying for participation adds cost, so programs may instead wish to condition benefits or participation on service use (such as meeting with an advisor). But any time program benefits or participation are made conditional on service use there is a risk of creating new barriers for students. For instance, withholding transportation assistance could prevent students from attending classes, while registration holds could exacerbate existing challenges with course enrollment that contribute to dropout. Of course, institutions have limited tools to enforce participation or other requirements, so this may sometimes be necessary. Payments on top of existing financial aid are less likely to have negative side effects, but they inherently add cost to the program.[13]

5.12. TUTORING AND OTHER ACADEMIC SUPPORT ARE PROMISING

Tutoring and academic support services are promising interventions for improving college persistence and completion, though the evidence is more suggestive than direct. Many students, especially those from lower-income backgrounds, enter higher education with gaps in academic preparation, and academic difficulties are an important driver of college dropout. High-quality tutoring has both a strong theoretical foundation and empirical evidence base for helping students master academic content (Fryer 2017). This is particularly relevant for students in developmental education courses, where building fundamental reading, writing, and mathematics skills can be essential for academic progress.

While the impact of tutoring on college persistence and completion can be difficult to isolate since tutoring is often embedded in more comprehensive programs, many programs with a tutoring component are effective. Some programs refer students to existing campus tutoring services, but researchers often lack data on actual usage rates, making it difficult to assess whether tutoring contributed to any observed program impacts. Moreover, the potential effectiveness of such referrals would depend on the quality of available tutoring services, which is unknown and likely varies across settings.

Importantly, even when tutoring does not lead to increased graduation rates, it may still yield valuable benefits by helping students develop fundamental academic skills that have value beyond the college setting. But more research on long-run outcomes would be needed to confirm this.

5.13. NEW TECHNOLOGIES ARE WORTH PURSUING WITH CAUTION

New technologies offer promising opportunities to expand access to advising and support services, but they should be pursued with caution. Some evidence (not to mention most people's experience during the COVID-19

school closures) suggest virtual services may be less effective than in-person support. Still, the cost and scalability advantages of technology-enabled approaches warrant continued consideration. For example, virtual advising can reach students in rural areas or other settings where in-person services are impractical and can be delivered at a fraction of the cost of traditional models. These advantages are particularly relevant for serving students who lack access to alternative sources of support. These technologies could be incorporated as a tool that advisors and students can use as part of a larger intervention or institutional advising, though the results of earlier "technology enhanced" advising approaches has been mixed.

Generative AI may enhance these capabilities, potentially providing more sophisticated and personalized support than earlier chatbots or technology-enabled advising. However, generative AI models can "hallucinate," providing incorrect information, so the development of AI advisors or incorporation of AI into existing programs requires careful attention to accuracy and appropriate human oversight. The Georgia State non-generative AI model—where automated responses are based on a pre-specified knowledge base and some questions are referred to a human—suggests one approach for balancing automation with oversight. As the technology evolves, it may become better suited to serve as an "automated advisor," but for the time being institutions and support program providers should proceed with caution.

5.14. STUDY LONG-RUN OUTCOMES

While college enrollment, persistence, and completion are important intermediate goals, understanding whether interventions improve participants' long-run outcomes is crucial. Long-run follow-up can help verify that completion gains translate into expected benefits like higher wages, as demonstrated in the ASAP Ohio study (Hill, Somo, and Warner 2023). Such analysis could also reveal whether different approaches to promoting completion—or completing degrees in different programs or majors—may have different effects on participants' ultimate outcomes. For instance, interventions that build academic skills through tutoring might enhance human capital even if students don't complete degrees, while programs that increase completion by reducing degree requirements might have different long-term effects. Even interventions that only improve intermediate outcomes without affecting completion rates could generate meaningful long-term benefits by developing skills or knowledge. Many interventions improve outcomes short of completion—like credit accumulation or even study habits—and even the most successful interventions leave a (near) majority of students without a degree. One hopes schooling builds human capital even for students who don't complete; long-run follow-up is the only way to find out.

Assessing the effects of long-run outcomes presents both practical and analytical challenges. To start, seeing long-run outcomes inherently takes time, so researchers can only ever look at long-term outcomes for older programs. Following study participants can also be expensive, though matching to administrative data can both reduce this cost and mitigate attrition concerns. Many interventions could only be expected to have fairly small effects on skills, which in turn would have only small effects on wages or other long-run outcomes, which would require very large samples to detect.

One additional source of data on long-run outcomes researchers could consider is credit reports. Given that financial distress among people with some college but no degree is often cited as motivation for completion programs, examining financial distress as a long-run outcome would speak to this motivation directly. Measures of financial distress based on credit reports might also be more sensitive than wages, potentially allowing researchers to detect impacts with smaller samples. Outcomes derived from credit reports have not been considered in the college access and completion literature (to our knowledge), but they have been used in studies of health insurance access (e.g., Finkelstein et al. 2012).

6. DISCUSSION

Our review of college access and completion interventions from the past two decades reveals both promising developments and persistent challenges in supporting students in their journey to a college degree. The evidence includes many well-executed randomized controlled trials, which provide strong causal evidence about intervention effectiveness in specific contexts. Yet many questions remain unanswered.

Several patterns emerge from this evidence base. Program intensity correlates with the magnitude of impact—more comprehensive interventions typically produce larger effects, especially for completion. The impressive results from programs like ASAP demonstrate the potential of comprehensive wraparound support, though their substantial costs make scaling and sustaining this approach difficult. While advising-only interventions often show modest impacts, their lower costs can make them cost-effective alternatives to more comprehensive approaches. For access, relatively inexpensive, targeted interventions are more promising, especially those that provide hands-on support for college application and FAFSA.

Differences in how studies conceptualize and calculate costs can make comparing across interventions difficult. The discussion of how to improve access and completion would benefit from extending cost-benefit considerations beyond direct program budgets to encompass broader social costs and returns. For example, some programs cause students to use more (or less) resources beyond the program itself. The potential benefits associated with increases in human capital among program participants who don't complete a degree are also rarely discussed. While degree completion remains an important metric, the reality that even successful interventions leave many students without degrees suggests the need to better understand and value the skills and knowledge acquired by students who don't complete.

The analysis in this report focused on interventions to improve access and completion raises fundamental questions about the allocation of resources to higher education overall and across sectors and institutions. Institutions face difficult choices between concentrating resources on comprehensive support for some students versus providing lighter-touch services to many. The evidence suggests that cheaper interventions usually produce small improvements, often leaving completion rates quite low. Yet few institutions can afford intensive support for all who might benefit. Some promising approaches, such as guiding students toward higher-quality institutions, depend on those institutions having both the capacity and commitment to serve more disadvantaged students effectively.

Many institutions, particularly community colleges and less-selective public four-year colleges, do not have adequate resources to support their enrolled students effectively. This raises questions about the fairness and effectiveness of encouraging enrollment without sufficient student support infrastructure. Simultaneously, the disparities in college access and completion that motivate much of this work stem from academic preparation gaps that emerge much earlier in students' educational trajectories. While these systemic challenges should not prevent stakeholders from seeking incremental improvements, they demand broader solutions that address root causes while ensuring enrolled students have genuine opportunities for success.

Several research priorities emerge from this analysis. First, there is still a lot of work to be done to identify best practices in traditional support programs. For example, we need a better understanding of how to promote student engagement with support services and how to leverage technology effectively for cost-effective support delivery. More analysis of long-run outcomes would also be beneficial, although this is not always possible.

Second, systematic study of institutional and policy barriers to simplification could inform more successful reform efforts. Research on programs or policies to reduce students' uncertainty about how they will finance a

college education would be particularly valuable. These questions cannot be easily answered with experimental methods, but other approaches could yield valuable insights.

Third, more attention should be focused on faculty practices and instructional approaches, including investigation of how teaching quality and faculty-student relationships influence persistence. Finally, research in this area should also incorporate field of study and major choice in the analysis, particularly given evidence that these factors significantly affect both completion and labor market returns.

The path forward requires balancing demonstrated benefits of intensive support with practical constraints facing most institutions. This includes reforming how higher education is financed to ensure students who attempt postsecondary education but don't complete a degree are not worse off financially, while also working toward systemic changes that address preparation gaps and resource inequities. While the existing evidence provides valuable guidance for institutions and policymakers, substantial work remains to identify sustainable approaches for helping more students access and complete college successfully.

ENDNOTES

1 We note that there is now a sizable gender gap in college enrollment and completion, favoring women. We are not aware of any interventions specifically targeted to boys and men, though many studies find differential effects of interventions by gender.

2 Numerous people contributed to the research that informs this report over many months; see the acknowledgements section for a full list. I use "we" here to acknowledge their contribution. The conclusions and recommendations of this report are my own.

3 We do not include the Dell Scholars and Buffett Scholarship programs even though they offered some in-college support because that support was minimal; they were primarily scholarship programs.

4 Quasi-experimental studies of dual enrollment programs were not reviewed for this report.

5 For example, to test for complementarity between component A and component B, the researcher needs to randomly assign students to A only, B only, A and B together, or a control group; the difference between each component alone and the two together identifies complementarities. The number of treatment groups (and required sample size) grows quickly with more program components. Muralidharan, Romero, and Wüthrich (forthcoming) show that studies that use a "factorial" design (which is more common in development economics than in the college access and completion literature), when analyzed correctly, are often severely underpowered.

6 The cost study for the ACE program implemented at John Jay College has not yet been released, but the program does appear quite a bit less intensive than ASAP CUNY, so it will likely be less expensive. ASAP CUNY also reduced costs when it scaled the program.

7 This is a complex question, as students are choosing to enroll in such programs and may benefit from additional education even if they don't complete a credential. Defining "too low" would of course be subjective also. But encouraging students into college programs that do not have enough support services to make it reasonably likely that they could complete the program at a reasonable cost is not fair, particularly if better educational options are not available to them.

8 Also, while the cost per degree earned was lower in the treatment group, the cost per credit earned was higher in the treatment group, compared to the control.

9 A proper comparison would also adjust for inflation, but the interventions discussed in this section took place reasonably close in time, so we do not adjust for inflation in this discussion.

10 We do not summarize the Buffett Scholars study in the appendix because it is mainly financial aid.

11 Several other interventions, while not targeting specific colleges, also shift students from two-year to four-year colleges or into more selective colleges, though these studies do not always track completion (e.g., Longhorn, Buffett Scholars, SOURCE). Simply directing students away from the worst (often for-profit) colleges, even if that means they do not enroll in college at all, could be very valuable for some students.

12 Take-up of the New Hampshire coaching program was around 50%, so the treatment-on-the-treated effects are about twice as large.

13 This is a cost to the institution or program provider, but as discussed above, in an accounting of the economic costs and benefits, such payments represent a transfer to students and not additional resource use.

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BROOKINGS