

The promise of free college (and its potential pitfalls)

Evidence on the design, implementation, and effects of a performance-based college aid program from a randomized control trial

Douglas N. Harris*, Raquel Farmer-Hinton, Debbie Kim, John Diamond, Tangela Blakely Reavis, Kelly Krupa Rifelj, Hilary Lustick, Bradley Carl

EXECUTIVE SUMMARY

The price of college is rising, making college feel out of reach for a rising share of Americans. Families can borrow to be sure, but with total student loan debt now above \$1 trillion nationally, the situation seems unsustainable. Meanwhile, we face a long-term decline in our international ranking on college attainment and the disparities in college access by race and income—disparities that financial aid and loans are supposed to address—seem larger than ever. It is no surprise then that in the campaign for U.S. President in the 2016 election, nearly all candidates of both major political parties raised the issue of college affordability.

Increasing financial aid to students is one obvious potential solution. Once limited to discussions of the size of need-based aid programs such as Pell grants and state-based merit aid programs, new forms of aid have emerged. Place-based “promise scholarships” provide funds to students attending schools in certain cities and states. Others have proposed changes on a national scale, increasing and redesigning financial aid to eliminate student loan debt, called debt-free college, or going even further by eliminating tuition, fees, and/or some share of living expenses—free college.

This study examines one of the first randomized control trials of a program similar to many free college and promise scholarship proposals. The Degree Project was launched in Milwaukee Public Schools (MPS) in 2011. Students in 18 randomly selected high schools were promised up to \$12,000

* Corresponding author, **Douglas N. Harris**, is a professor of economics and the Schleider Foundation Chair in Public Education at Tulane University, and the principal investigator of the project. Contact information: dharri5@tulane.edu, 504-862-8352, 302 Tilton Hall, Department of Economics, 6823 St. Charles Ave., New Orleans, LA 70118-5698.

to pay for college, at essentially any in-state institution. These funds were sufficient to cover all tuition and fees at the local two-year college—making it a form of free or debt-free college. The funds could also be used to attend four-year colleges, covering more than one year of tuition, and fees. To receive the funds, students had to graduate on time from an MPS high school with at least a 2.5 cumulative GPA and a 90 percent class attendance rate, and fill out the Free Application for Federal Student Aid (FAFSA).

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The Degree Project had some impact on students' motivation, college expectations, and steps toward college, such as applying to more colleges and FAFSA completion. However, it had no effect on the performance measures and no effect on whether students went directly on to college. The most recent evidence does suggest that the scholarship may have slightly increased persistence and graduation in two-year colleges, though not in four-year

colleges. We are continuing to track these effects; however, it seems clear at this point that many of the potential benefits, during and just after high school, did not emerge.

Through additional quantitative and qualitative evidence, we identify three related reasons why the effects were not more substantial: (a) the performance requirements greatly reduced the number of students who could plausibly receive the funds; (b) the performance requirements, combined with the temporary, small-scale design, meant that the program did not have the catalyzing effect on high schools that otherwise similar programs have seen; and (c) the context in Milwaukee—particularly, the very low level of academic performance and lack of counselor resources—may have been particularly ill-suited to make a performance-based aid program work well.

In other words, this version of free college did not live up its potential in part because of the way it was designed. While we plan to continue studying the program in future years and more effects may emerge, our first decade of work suggests two key lessons:

- 1. Avoid performance requirements.** Merit or performance requirements, though popular, seem to limit both the effectiveness and equity of financial aid. When students received The Degree Project funds, it increased their attendance and graduation somewhat, but the performance requirements meant that very few actually received any funding. So why have the requirements? The intent is to support and reward students who have the best chance to succeed in college, and therefore the smallest likelihood of dropping out with debt, but the result is essentially the opposite. Under almost any plausible assumptions, performance requirements reduce the number of college graduates more than they reduce the number who drop out with debt. A second possible argument for performance requirements is that they may induce students to work harder and become more academically prepared for college, but we find no evidence of this either. The main effect of performance requirements, then, is to provide more funds to higher-income families, which only reinforces existing disparities.
- 2. Use free college and other forms of financial aid to catalyze changes in high schools.** Policy debates about financial aid tend to focus narrowly on how it makes college cheaper for the individual students who receive the funds. But to fully realize the effects of aid, it has to be leveraged to improve the college-going cultures of high schools. MPS high schools were not set up to make college a viable option for most students. The schools did not make a college prep curriculum or structured supports broadly available, or expect most

students to attend college. The Degree Project, with its narrow focus on giving money to individual students, was not designed to address this larger problem and, as a result, it did not have the catalyzing effect on high schools that has been observed in other free college programs. The performance requirements made matters worse; by significantly narrowing the share of students who could benefit from the program, the requirements reduced the potential for positive “spillover effects” across students and educators. In short, for free college to fulfill its potential, policymakers need to leverage it to change high schools.

As one of the first randomized trials on the topic, this study provides important new evidence on the likely effect of a full-scale free college program. While the program was not as effective as others have been, the combination of this and other evidence suggest how these programs can be positive contributors to educational attainment and equity when they are well designed. Theory and evidence suggest that making college cheaper will make it easier for students to afford it, and that free college will have the added effect of reducing uncertainty about college prices. This, in turn, can motivate students to improve their academic preparation in primary and secondary education and improve the college-going culture of high schools as educators rise to the occasion of students’ higher expectations.

All of this comes at a cost, of course. Senator Bernie Sanders’ free college proposal, for example, would cost \$75 billion per year. This raises a key question, are there other less expensive ways to increase college access and success? College attendance and completion—including everything from certificates to four-year degrees—have large social and economic returns, so most college access programs will be worth the cost in some sense.

While prior research suggests that increasing financial aid is probably not the most cost-effective way to increase college completion, getting colleges to use their resources more wisely will only get us so far. Without substantially reducing the price of college, there is no plausible chance that we will ever approach the goal of equitable access to college education, leverage the human capital potential across all parts of our increasingly diverse citizenry, or stop the nation’s decline in educational attainment relative to other countries. One way or the other, we need to get a larger share of students, especially students of color and those from low-income families, into and through college. If carefully designed and implemented, free college may be one part of the solution.

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INTRODUCTION: FINANCIAL AID, PROMISE SCHOLARSHIPS AND FREE COLLEGE

The rising price of college is increasingly seen as a cause of stagnant educational attainment levels and achievement gaps by family income (Carneiro & Heckman, 2003; Bailey & Dynarski, 2011; Goldin & Katz, 2008; Havemen & Wilson, 2007). College costs, sticker prices, and net prices have been rising three-to-four percent per year (inflation-adjusted) for decades (Desrochers, Lenihan, & Wellman, 2010; Ma, Baum, Pender, & Welch, 2016), raising enough

public concern that nearly all candidates for U.S. president in the 2016 election, of both major political parties, raised the issue of college affordability—and many proposed specific policies to reduce college prices.

Financial aid is one solution, as it reduces the price of educational investment and therefore increases the rate of return to education for students. The federal Pell grant and GI Bill are two of the most long-standing and well-known examples. Later, states also began creating and expanding their own programs, though directing resources to students based more on “merit” than financial need (Baum, Ma, Pender, & Welch, 2017). Research has generally shown positive effects of the receipt of various forms of aid on college attendance, persistence, and graduation (Deming & Dynarski, 2009; Nguyen, Kramer, & Evans, 2018), although the effects are not always large relative to more cost-effective college access programs (Harris, 2013).

More recently, some policymakers have proposed reducing the price enough to eliminate loans (debt-free college) or cover the entire direct cost of college, and perhaps some share of living expenses, through various initiatives known as “free college.” While it comes at an obvious and significant cost, free college has several advantages (Goldrick-Rab, 2016). In addition to reducing the expected price of college, free college reduces price uncertainty as students no longer need to compare institutions on prices or worry that prices might increase, or financial aid might decrease, before they graduate. Such programs also have the potential to influence students when they are younger. If people know college will be free of charge when they are adolescents or teenagers, then they may work harder in school and become better prepared for college (Goldrick-Rab, Harris, & Trostel, 2009).

The “promise scholarship” represents another recent form of financial aid, which, like free college, reduces expected prices and price uncertainty and makes aid commitments to students earlier. The term promise scholarship, or early commitment aid, can mean many things, but the general principle is that financial aid is committed well in advance of college, to students who live or attend school in a specific place (Miller-Adams, 2015; Perna & Leigh, 2018). While promise scholarships are fairly new, interest is growing quickly among state and philanthropic stakeholders (Perna & Leigh, 2018). Most well-known is the Kalamazoo Promise, which pays all tuition and fees for graduates of the city’s public high school to attend any public two- or four-year college in the state of Michigan (Miller-Adams, 2009, 2015).

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Though estimation of impacts is complicated by limited statistical power and other factors, the Kalamazoo Promise has likely increased college-going (Bartik, Hershbein, & Lachowska, 2015). Research to date reinforces prior studies of traditional aid programs in showing positive effects of promise scholarships (Swanson, Watson, Ritter, & Nichols, 2016).

The current study provides evidence from one of the first randomized control trials (RCT) of a version of free college and promise scholarships. The Degree Project (TDP), a program for students in Milwaukee, provided a fixed scholarship amount sufficient to make community college free of tuition and fees and substantially reduce the price of four-year colleges. In 2011, each first-time ninth grader in half of the city’s 36 public high schools (2,587 total students) was promised a total of \$12,000 to pay for college. To receive the funding, students had to graduate high school on time, reach a minimum high school GPA of 2.5 (4.0 scale), attend class at least 90 percent of the time, fill out the Free Application for Federal Student Aid (FAFSA), and attend an eligible college. These performance requirements were patterned after the Pittsburgh Promise program (Bozick, Gonzalez, & Engberg, 2015; Page, Iriti, Lowry, & Anthony, 2017) and aligned with at least 50 performance-based programs nationally, especially large state

merit-aid programs (Miller-Adams, 2015, Perna & Leigh, 2017, Swanson et al., 2016). By offering scholarship funds, TDP purposefully sought to isolate the effect of aid on college-going, separate from the effect of additional college access supports (e.g., college counseling and tutoring).

With limited prior research on free college and significant empirical challenges in identifying effects through quasi-experimental analysis, this RCT provides important new evidence. In addition to identifying the causal effects of TDP on a wide variety of academic and post-schooling social and economic outcomes, we designed this as a “comprehensive experiment” (Harris & Goldrick-Rab, 2012) that involved creating a rich longitudinal data set of high school transcripts and surveys, college attendance/graduation data, interviews with school staff throughout students’ high school years, and interviews with samples of students starting in ninth grade and continuing throughout college. The intent of these efforts was to understand how and why effects did and did not emerge. What follows is an integrated summary of our mixed methods analysis of the program, including findings from seven separate studies.

The next section summarizes the causal effects of the program on students, summarized from Harris (2017). While TDP increased some college-related behaviors during high school and had a small effect on college attendance two years after high school and on college graduation, it had no measurable effect on students’ academic preparation during high school, initial college attendance, or long-term outcomes such as employment.

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Through additional analysis, we conclude that the effects were not larger because of three interconnected decisions about policy design and implementation:

- *Performance requirements.* The incorporation of performance requirements severely restricted the share of students who received TDP funding. In addition, the program put the onus of change on students to meet the requirements, without additional supports.
- *Temporary, small-scale program design.* Scaled-up promise scholarship programs (e.g., Kalamazoo Promise) have shown the potential to raise everyone’s expectations for students’ post-high school plans and therefore to change the college-going culture of schools. However, studying this program with an RCT required making the program temporary and restricting participation to a small share of students. This reduced the incentives, especially on the part of school staff, to meaningfully change behavior and school culture.
- *Communication.* Prior research highlights the importance of communications in encouraging fidelity of implementation (e.g., Bloom, Hill, & Riccio, 2003; Angrist, Lang, & Oreopoulos, 2009). A side effect of the small-scale, experimental design, however, was that blanket communications to all students were not possible. Instead, the program administrators and counselors had to take the more challenging path: targeting communications to specific students. While these communications did lead to larger TDP effects among those who received them, the communications might have been even more effective if they had provided more specific advice to counselors, more advice to students about how to meet the requirements, and aligned communications between students and counselors to reinforce their messages.

The effects of these three decisions—performance requirements, small-scale/temporary design, and communications—were amplified by the lack of resources available to Milwaukee students and their schools. A general theme of education research is that schools cannot improve, and programs do not work, when students and educators do not have the knowledge and other resources to implement them well (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010). In this case, the vast majority of students started high school far below the performance thresholds and would have needed a great deal of assistance to meet the requirements. Milwaukee high schools were not prepared to help more students get to college. Many schools, especially open enrollment (non-selective) high schools serving many low-income students, had small numbers of counselors relative to their student bodies. Some had no full-time counselor at all. The TDP program, which was designed to isolate the effect of aid, did not attempt to alleviate these resource gaps.

For these reasons, TDP did not have a catalyzing effect on schools that other promise scholarships have had in other contexts. Schools did not have the resources and, as a temporary program involving only a small fraction of students in any given school, did not have much incentive to change what they were doing. Communicating about the program was difficult. Counselors had to call each individual student down to the office rather than hold assemblies, make announcements over loudspeakers, or put up banners. The small effects that we did see in student behavior and expectations, therefore, did not “spillover” to others in the school. Schools are social environments where interactions among students and educators can change behavior and beliefs in indirect ways. This is what happened, for example, with the Kalamazoo Promise, a permanent program for all the city’s students, now and into the future, with minimal performance requirements. Essentially all current and future students had a good chance of receiving funding. In Kalamazoo, the program changed the way educators saw their jobs and improved the college-going culture (Jones, Miron, & Kelaher-Young, 2012).

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In short, TDP students and educators had neither the resources nor incentives to respond to the scholarship offer in ways that might significantly change college-going outcomes. We conclude that free college and other forms of aid can help students, but, like almost any program, the degree to which this occurs depends on design and implementation.

THE DEGREE PROJECT EXPERIMENT

The Degree Project program was designed in a partnership between the lead author and the program funder and operator, the Great Lakes Higher Education Corporation and Affiliates, and the Milwaukee Public Schools (MPS). Great Lakes committed \$31 million to fund the scholarships, enough to provide the full scholarship to every one of the 2,587 TDP promise recipients. TDP was designed as a demonstration program to identify impacts. Therefore, only one cohort of students was directly involved.

All schools serving ninth graders in MPS were included so long as schools provided GPA and attendance data to the district and served students from ninth through twelfth grades. Within the 36 MPS schools, all first-time ninth graders enrolled as of November 1, 2011 were identified as potentially eligible using administrative data. On November 17, 2011, half the schools were selected for TDP and every one of the 2,587 freshmen in those schools were sent letters that indicated they were selected, described the program, and directed them to the program website for additional

information (www.degreeproject.com). There were 2,464 eligible students in the 18 non-selected schools. These students serve as the control group.

TDP treatment students were eligible to receive TDP scholarship funds so long as they graduated from any MPS high school on time (within four years of starting ninth grade) with at least a 2.5 cumulative GPA (C+/B-) and attended school at least 90 percent of the time. Nearly identical to those of the Pittsburgh Promise, the cumulative nature of the performance requirements was intended to allow lower-achieving students time to catch up. Students remained eligible for the scholarship regardless of whether they switched high schools. However, they still had to graduate from an eligible MPS school to receive the money, which created some incentive to stay within MPS.

In the MPS graduating class just before TDP, only 16.3 percent of graduates met these requirements and 65 percent of those students went directly to college in fall 2009. Moreover, in the TDP cohort, the average ninth grade GPA in the TDP cohort was 1.8 and the class attendance rate was 81 percent, both well below the program's eligibility thresholds. While the performance thresholds may have seemed low, they presented a real challenge.

Several additional TDP rules required action toward the end of high school and into the college years. Students had to complete a FAFSA the senior year of high school and each year of college, a requirement that can be an impediment to college entry (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012). Students who graduated from high school on-time (spring 2015) had up to 15 months to start college (fall 2016). In other words, students who did not attend college in the first year after high school graduation still had the full scholarship amount to spend if they enrolled in the second year.

The funds could be used at any of 66 two- or four-year public colleges, as well as many private colleges, in Wisconsin—the vast majority of higher education institutions in the state. There were no GPA requirements during college, but students needed to remain enrolled at least half time and use scholarship funds within four years of expected high school graduation (i.e., by spring 2019). Students were allowed to spend up to half of the total scholarship per year if they attended full-time (≥ 12 credits) and half this amount if they attended at least half-time (but less than full-time).

To receive the funds, students also needed to be first-time college enrollees, degree-seeking, and have at least \$1 of unmet need. Therefore, while income did not directly affect initial eligibility, it did affect the level and form in which students received the funds. Financial aid offices disbursed the aid following the same process used to disburse state grant aid. TDP scholarships were “last dollar” and covered up to the cost of attendance. Among students who attended four-year colleges and received TDP funds, we estimate that the average TDP grant was \$4,262 and average reduction in loans was \$1,407 annually.³

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To place the scholarship amount in perspective, half of MPS high school graduates who went to college in recent years have attended either Milwaukee Area Technical College or the University of Wisconsin-Milwaukee, where full-time annual tuition and fees in 2012 were \$3,184 and \$8,675, respectively. Accordingly, communications to students likely conveyed that the funding was enough to cover all tuition and fees for a two-year degree (i.e., free two-year college). Because students are often misinformed about the financial aid and the cost of college (Angrist,

Oreopoulos, & Williams, 2010; Ikenberry & Hartle, 1998), an extensive communications plan was developed for TDP (see later discussion).

The above description of the program highlights the key design elements of any college financial aid program and the specific decisions made for TDP: the use of student performance requirements (TDP included them); the set of eligible colleges where students can use the money (TDP allowed in-state two- and four-year), whether it first-dollar or last-dollar (TDP was last-dollar), and the maximum funding level (TDP was \$12,000). Some programs use performance requirements (e.g., the Pittsburgh Promise) and others do not (e.g., the Kalamazoo Promise). Some programs allow funding to be used only at public colleges or two-year institutions (e.g., the Tennessee Promise). Some promise scholarships offer enough funding to make college free of full tuition and fees (e.g., the Kalamazoo Promise).

Some programs also include additional supports to students aside from financial aid (e.g., SayYES in New York), though TDP chose not to. With TDP, the program administrator and funder, Great Lakes, wanted to test the effect of financial aid, separate from additional college access supports (e.g., mentoring and tutoring). Therefore, counselors were not encouraged or provided resources to change their practice.

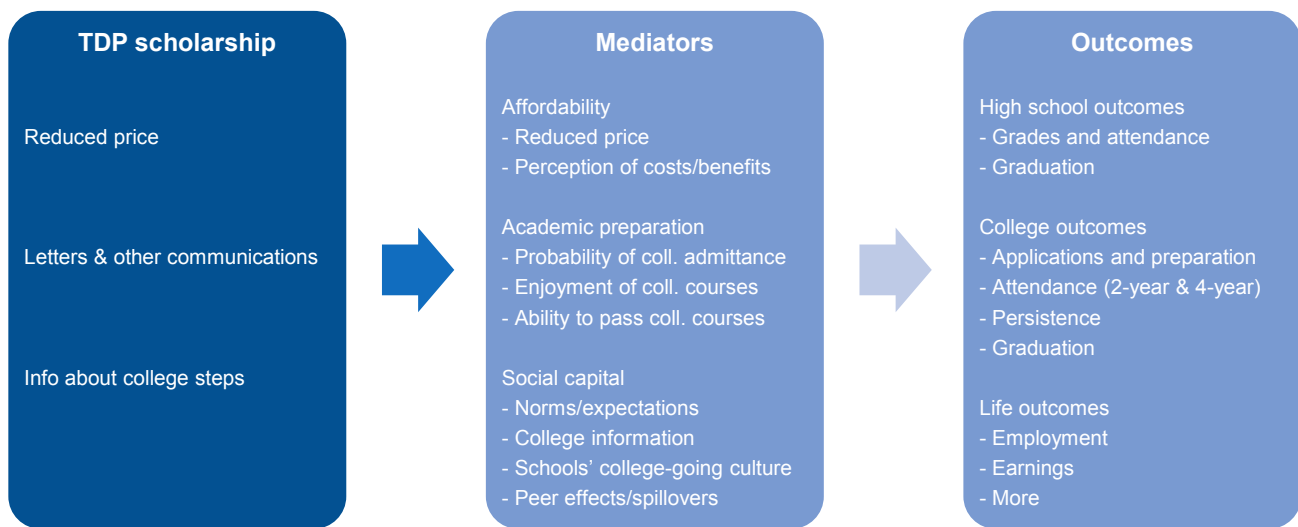
The decision to have performance requirements (especially a minimum GPA), and the omission of additional services and supports, as we will see, turned out to be pivotal in TDP's operation and effectiveness.

THEORY AND PRIOR EVIDENCE ON COLLEGE ACCESS

TDP was designed based on lessons from prior literature emphasizing affordability, academic preparation, and social capital as drivers of college access (Farmer-Hinton & Adams, 2006; Heller, 2001; Hossler, Schmit, & Vesper, 1999; Long & Riley, 2007; Perna, 2006; Schneider & Stevenson, 1999; Tierney, Corwin, & Colyar, 2005). The theory of change from the outset of the project, shown in Figure 1, suggests that students with more academic preparation and college-going social capital (i.e., access to networks that share college-related resources) have higher probabilities of graduating high school and entering college (Hill, Bregman, & Andrade, 2015) and, therefore, reaping the long-term benefits of college (e.g., through employment and earnings).

The left box of Figure 1 highlights that TDP could influence students through three related mechanisms: the financial award itself; communications from the program funder/administrator about whether students were meeting eligibility requirements; and communications about additional steps to help students get into, and succeed in, college and life. The TDP financial award makes college cheaper and may change students' calculus and expectations about the costs and benefits of college. By promising aid earlier, TDP may also increase academic preparation and social capital during high school, facilitating later success in college.

Figure 1. Theory of Change



“Peer effects” and “spillovers” are also shown in the mediators box and are related to college-going social capital. College-going culture is partly driven by students influencing one another’s college outcomes within school networks (Bryan, Moore-Thomas, Day-Vines, & Holcomb-McCoy, 2011; Engberg & Wolniak, 2010; Farmer-Hinton, 2008; 2011; Holland, 2015, 2016; McDonough, 1997; Perna & Titus; Plank & Jordan, 2001; Robinson & Roska, 2016; Roderick, Coca, & Nagaoka, 2011). Research also suggests that the actions of school counselors influence students’ receipt of college-related information and their college outcomes (Bryan et al., 2011; Hurwitz & Howell, 2014; McDonough, 2005a, 2005b; Perna, Rowan-Kenyon, Thomas, Bell, Anderson, & Li, 2008; Stanton-Salazar, 1997, 2011). Collectively, this evidence is consistent with the theory that early promise scholarships, including The Degree Project, may have direct effects on students’ college-related outcomes (i.e., through reduced cost) and indirect effects (e.g., changes in behavior by students, families and friends, and teachers and school staff arising from spillover effects), which may amplify and complement the direct effects. The evaluation that follows is designed to test these various mechanisms.

CONTEXT, METHODS, AND DATA

The Degree Project (TDP) was a partnership with the Milwaukee Public Schools (MPS), the 36th largest district in the nation when the initiative was launched in 2011. Enrolling approximately 80,000 students in 2011, MPS has a history of racial segregation as well as racial and class stratification regarding access to college (Farmer-Hinton & Rifelj, 2018). Test scores are well below the national and urban district averages (United States [U.S.] Department of Education, 2011). Parent income is slightly below the urban district average (University of Wisconsin-Milwaukee [UWM], 2010) and, as a result, four out of five students are eligible for free or reduced price lunches. Similar to the district as a whole, the sample is comprised of 62 percent African American, 20 percent Latinx, 11 percent White, and six percent Asian students. Among all first-time MPS ninth graders in fall 2002, 67.8 percent completed high school on time in 2006, and 44.4 percent of those high school graduates directly transitioned to college, somewhat less than the national average.

We designed TDP as a comprehensive experiment with mixed methods to understand how and why any effects emerged or failed to emerge (Harris & Goldrick-Rab, 2012). Administrative data include high school transcripts and college outcomes from the National Student Clearinghouse (NSC). In addition to providing the NSC data, MPS also allowed the research team to add questions to their annual surveys of students, and provided us with their Senior

Exit Survey data, which includes a rich array of information about graduating seniors' college plans and steps they took to prepare for college. We also carried out longitudinal interviews with a stratified sample of students and with at least one educator in every high school; and collected the documents used by the program funder/administrator

to communicate with students and counselors. Finally, we were able to link the MPS student records to other state data systems to measure students' long-term outcomes.

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The quantitative methods used to analyze randomized trials are in some respects simple because there is no need to account for selection bias, except in the form of attrition (missing data). Here, the situation is somewhat more complicated because of the paired cluster RCT design. As outlined in more detail in Harris (2017), we

estimate Ordinary Least Squares (OLS) regression models that include pair effects to account for the sampling design. Standard errors are clustered at the school level, though we also used other inference methods as well. We estimated this model with various combinations of covariates and estimated probit models as a robustness check with dichotomous variables. None of these additional robustness checks altered the results.

At baseline, the control and treatment groups were nearly identical, as expected (Harris, 2017). Attrition, the main threat to validity in an RCT, is very limited because we have nearly complete administrative data. Where we do see missing data (i.e., with the surveys), our diagnostics indicate that they do not introduce bias. For additional details on these elements, see Harris (2017).

The qualitative analysis draws on two sources of data. The first source, which comprises the bulk of our analysis, is school staff and student interviews. For students, we chose six schools (three control, three treatment) stratified by the prior school-level college-going rate. Within each school we randomly selected four students for interviews, stratified by GPA. We also sought at least one interview with the counselor in each school, each year. In schools that did not have counselors, we sought out the staff member tasked with implementing TDP, usually the school principal or support staff. We were successful in obtaining interviews in every school at least three times over the four years, with the exception of schools that closed down during this period. We refer to interviews with counselors and/or other administrators as "staff interviews" throughout. For both students and staff, we attempted to interview the same person every year. In this report, we report interview findings from treatment and control schools when students are in the ninth grade (year 1) and tenth grade (year 2, for a total of 24 interviews) and years 1 and 3 for school staff (47 interviews).

A second source of qualitative data was the messaging materials that were disseminated to school staff, students, and students' families. Over the four years of the intervention, schools collectively disseminated over 60 pieces of messaging materials such as letters, postcards, posters, and presentations to TDP students. We draw on these data primarily to understand how TDP's goals were framed and delivered to students and school staff.

The results presented in this chapter summarize and integrate results of two quantitative studies and five qualitative studies. For each qualitative study, the project team engaged in iterative, inductive coding of the data based on the studies' research questions and driving theoretical frameworks (Miles, Huberman, & Saldana, 2013). For the qualitative analyses, we developed coding schemes that captured staff and student knowledge of the intervention,

discussion around the messaging materials, perceptions of being on- or off-track to meet the performance requirements, student reports of college access activities, and staff reports of ways they supported students on the path to college.

With this comprehensive, mixed methods analysis, we are able to better understand how TDP was implemented, how the various actors responded to it, and some possible explanations for why it did not have the intended effect, especially during the high school years.

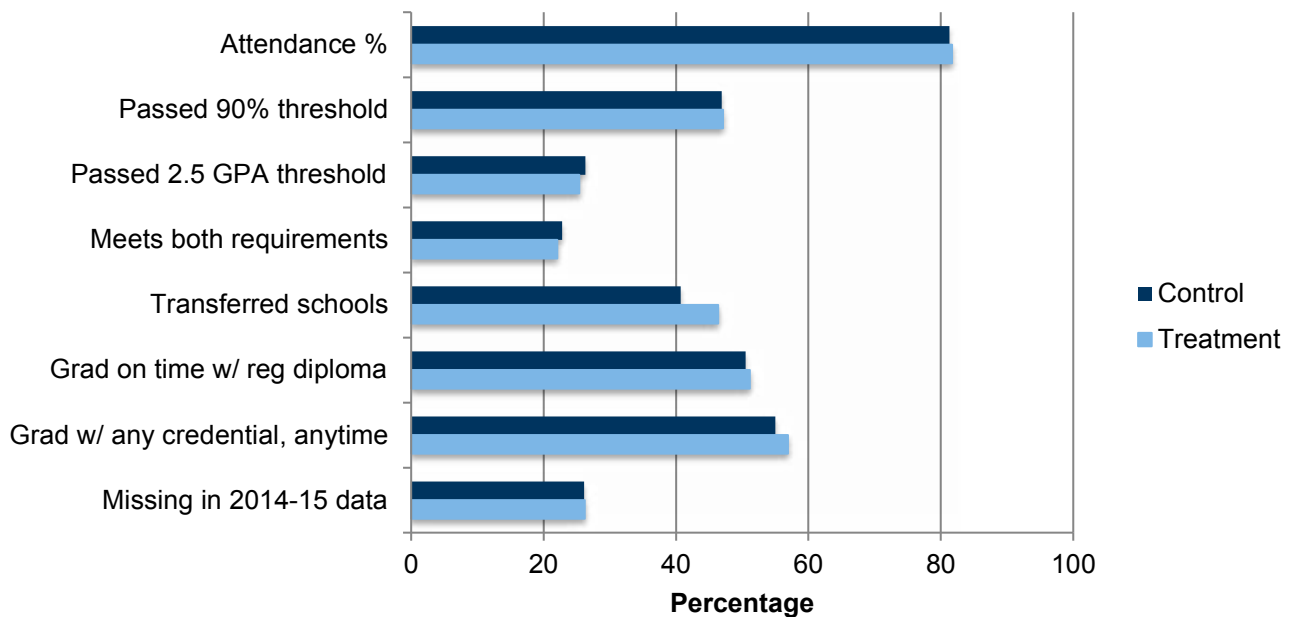
TDP EFFECTS ON HIGH SCHOOL, COLLEGE, AND LONG-TERM OUTCOMES

This section describes the average treatment effects of TDP based on the quantitative methods described above and in the full analysis by Harris (2017). We focus on differences in outcomes between students offered and not offered the scholarship (i.e., the intent-to-treat (ITT) estimates), accounting only for pair effects. We also identify the treatment-on-treated (TOT) effect (i.e., the effect of actually receiving funding). This latter effect is quasi-experimental in nature because only the offer was randomly assigned, not the receipt of funding.

EFFECTS ON STUDENTS' HIGH SCHOOL OUTCOMES

Figure 2 (next page) shows that being selected for TDP had no effect on the academic measures that were required to receive a scholarship: minimum high school GPA, attendance, and on-time high school graduation. Only 21 percent of the TDP students met all three performance requirements, essentially the same as the control group. Since several hundred students were arguably near the 2.5 GPA and 90 percent attendance cutoffs at baseline, we might have expected to see students in the treatment group who were just below the cutoffs to move above them to become eligible. This did not occur.

Figure 2. Average Treatment Effects (ITT): High School Academic Outcomes



Notes: Figure 2 reports the control group means. The treatment group bars are the sum of the control mean and the regression-adjusted effect estimates (pair effects only) with Ordinary Least Squares (OLS) estimation. Only GPA and math test scores had baseline imbalances at baseline (favoring the treatment group). Standard errors are clustered at the school level. None of the differences in this figure are significant at even the $p < .10$ level, so there are no asterisks. Effects on math and reading scores are omitted because they are not dichotomous and are therefore not on the same scales as those in the figure. These, too, show no differences in our preferred specifications.

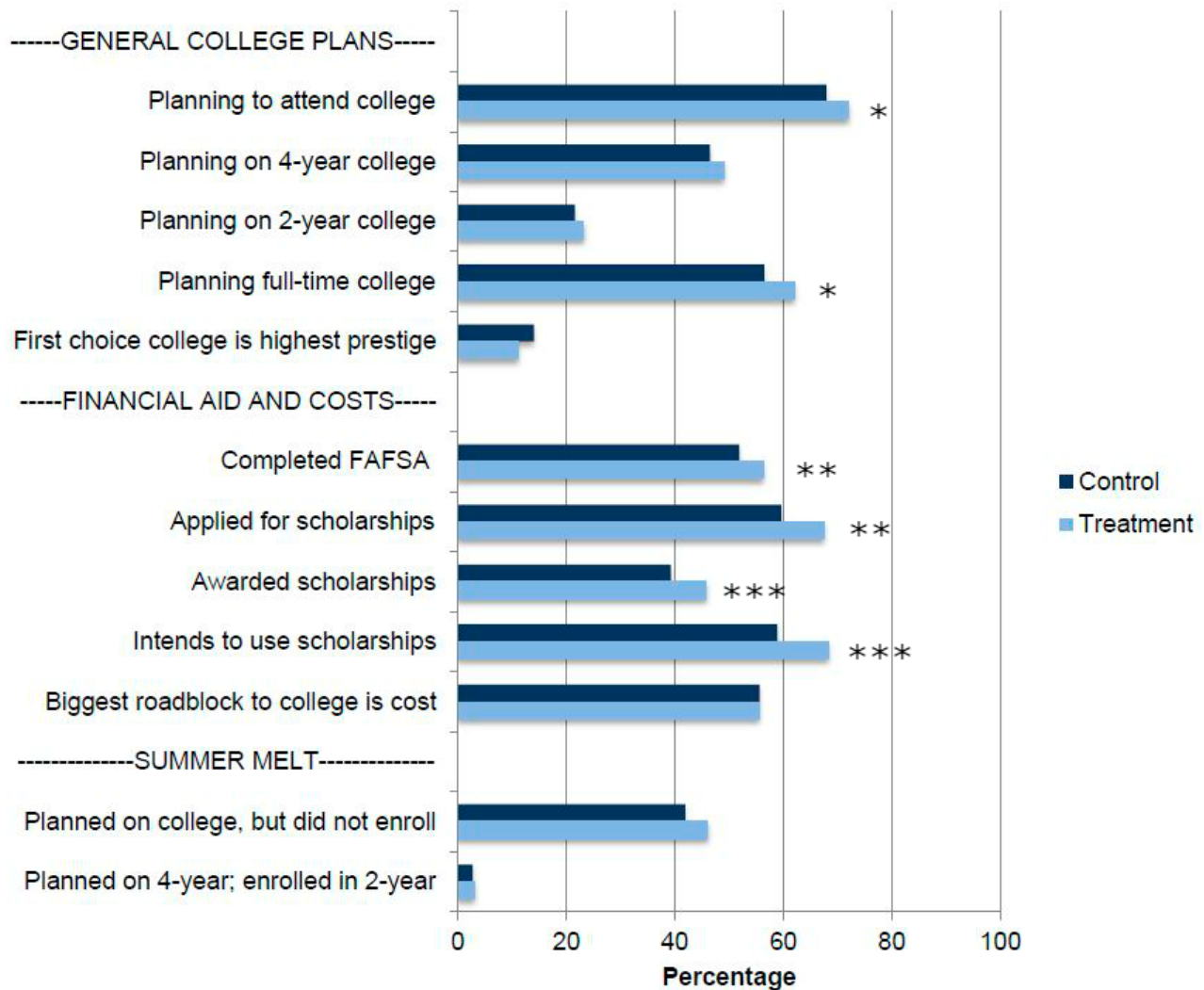
We do, however, see some positive impacts of TDP on high school students taking other specific steps toward college (Figure 3). TDP increased the likelihood of completing the FAFSA by about four percentage points (a nine percent increase from baseline). Not shown in Figure 3, the program also increased participation in college access programs other than TDP (such as Upward Bound) and increased the number of colleges that students applied to. The program also generated positive effects on college expectations, raising the percentage of seniors planning to attend college from 68 percent to 72 percent.

These positive effects on behaviors and expectations are largely reinforced by additional descriptive data. In the surveys, 64 percent of treatment students said that TDP increased their motivation to “work hard in school” and 55 percent said that they believed TDP increased their chances of making it to college. We also saw a clear and consistent pattern of seniors in the treatment group taking more college-level coursework (Arce-Trigatti & Mills, 2017) and saw a slight uptick in other academic measures in Figure 2 (Harris, 2017). These data may reflect a “last ditch” effort to meet the requirements, though it was insufficient to change students’ cumulative GPA. Overall,

Sixty-four percent of treatment students said that TDP increased their motivation to “work hard in school” and 55 percent said that they believed TDP increased their chances of making it to college..

these data suggest that TDP changed behavior in relatively easy and low-cost ways, but not enough to produce measurable effects on academic outcomes.

Figure 3. Average Treatment Effects (Intent-to-Treat): College Expectations and Other Steps to College



Notes: Results are based on surveys administered by MPS which had response rates greater than 50 percent, and small differences in response rates by control and treatment status. See notes from Figure 2 for more information about the method of estimating effects. The results for the number of colleges attended and college-going culture are omitted due to scale differences (the former is positive and statistically significant; the latter is insignificant). There are some baseline imbalances within the survey response sample, but the covariate-adjusted results yield similar patterns to those shown in Figure 3. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

Figure 3 shows positive effects of the treatment on students' self-reports of application, award, and intended use of scholarship awards, most likely because of the scholarship provided by TDP. However, the differences between the control and treatment groups are small. Sixty-nine percent of TDP seniors reported that they intended to use scholarships compared with 59 percent of the control group. In contrast, if the control group had no scholarships and all the treatment students received TDP, then this difference would be 100 percent. This small treatment contrast of

10 percentage point may suggest that, partly because of the performance requirements, most TDP students realized they would not receive any TDP funds.

We also collected survey data to probe whether the treatment changed the school culture. We find that TDP had no effect on the college-going culture (see Harris, 2017 for more information). This conclusion is reinforced by the student and counselor interviews. The lack of effect of TDP on high school practices is important to understanding the overall program effects.

EFFECTS ON COLLEGE OUTCOMES

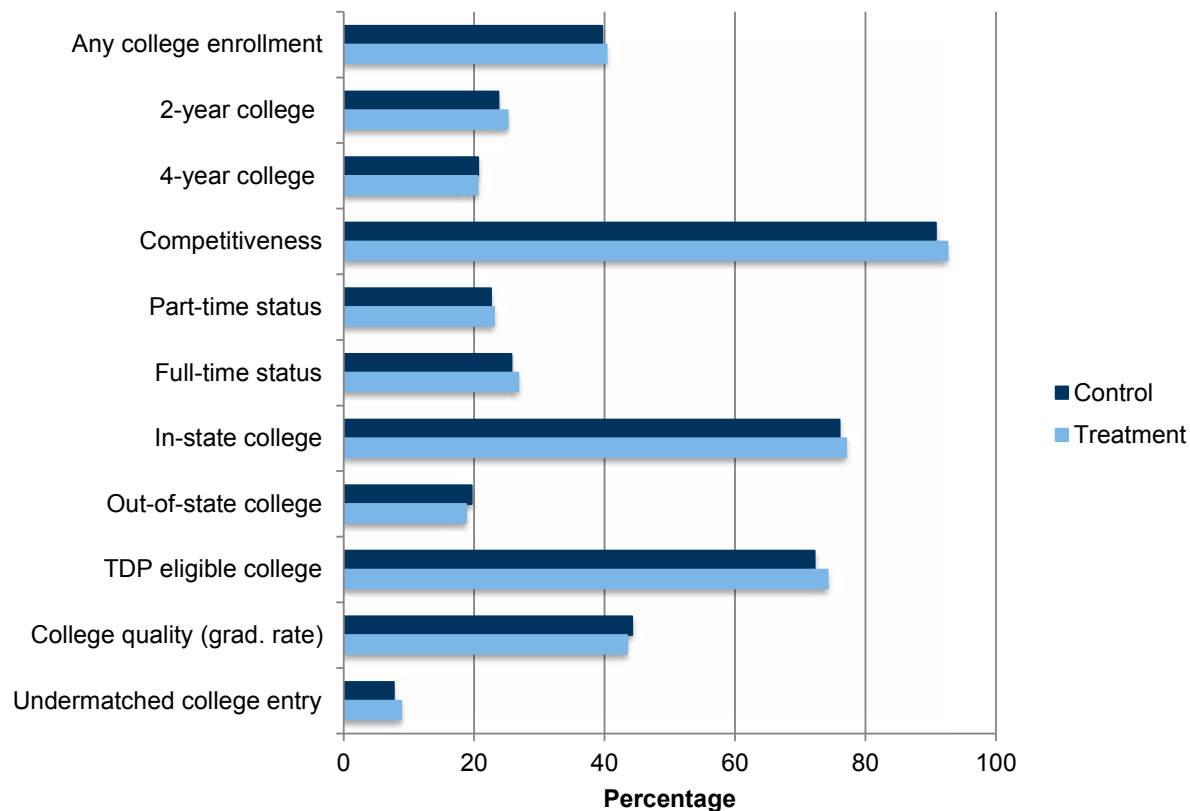
The primary objective of TDP was to increase college access and success. Given what prior research had shown about the effects of financial aid, and making college more affordable for students (e.g., Deming & Dynarski, 2009), there was good reason to expect some positive effects from a scholarship. With the early commitment of aid, the students might also have become better prepared for college, creating an even larger effect than with traditional aid programs.

Because of the performance requirements, most TDP students realized they would not receive any TDP funds.

We see no evidence of effects of TDP on initial college enrollment, however. As Figure 4 shows, the only exception is that the scholarship reduced the likelihood of attending an out-of-state college. While this

is unsurprising given that the funds could only be used at in-state colleges, it cannot, in itself, be interpreted as a positive outcome. Figure 4 (next page) shows that TDP may have led students to attend institutions that were less competitive and had lower graduation rates, although the effect was not usually statistically significant. Past research shows that other programs with in-state attendance requirements have similar effects (Goodman, 2008).

Figure 4. Average Treatment Effects (ITT): Initial College Outcomes



Notes: These results are based on analysis of NSC data provided by MPS on all students in the study. See notes from Figure 2 for additional details. The overall college-going rate was balanced at baseline. Significance levels: * $p < .10$, ** $p < .05$, *** $p < .01$.

The point estimates on college enrollment increase when we focus on those who met the requirements, and therefore had a clear opportunity to receive funding, but these estimates remain statistically insignificant (Harris, 2017). One potential explanation for the absence of an effect on immediate post-high school college entry may pertain to delays in the disbursement of TDP awards. Despite extensive planning by Great Lakes and the state agency involved in aid disbursement, the funding did not show up in students' aid packages until at least October of the first year of college and, in many cases, even later. While financial aid officers were instructed not to send overdue notices to TDP students, and interviewed students did not indicate that this affected their enrollment, the impact of this delay is difficult to gauge. The delay in aid disbursement also reinforces the idea that the administrative apparatus of financial aid programs creates uncertainty and additional roadblocks for students (Goldrick-Rab, 2016).

The picture begins to change somewhat when we look to later college years. By the end of the second post-high school year, the ITT effect becomes significant and in the range of 1-2 percentage points on two-year college enrollment. The TOT effects on two-year college enrollment are in the range of 5-9 percentage points (statistically significant) (see Harris, 2017). Differences between the ITT and TOT estimates for college persistence reflect the small percentage of students who met all the requirements and actually received the funds.

We also see preliminary evidence of a small (one percentage point) positive effect on two-year college completion (not shown). Even in the absence of effects on entry, positive effects on second-year enrollment and graduation are

plausible as TDP reduces students' accumulated financial burdens after they start college. In any event, these data cover only three years post-high school and few students graduate within this short time frame.

The emergence of a positive enrollment effect primarily in two-year colleges is noteworthy given that TDP provided essentially the same funding regardless of the type of college attended. The most likely explanation is that some of the communications indicated that the funds were sufficient to cover all tuition and fees at the local two-year college, i.e., free community college. This was likely important to families given their aversion to loans (Goldrick-Rab & Kelchen, 2015). Half of the students' parents in the baseline survey reported that it was very or extremely "wrong . . . to owe money," and almost three-quarters reported that it was very or extremely "hard . . . to get out of debt." Even though the funds could be used at four-year colleges, TDP seemed to have steered eligible students toward two-year institutions, allowing them to obtain a degree without incurring debt.

Even in the absence of effects on entry, positive effects on second-year enrollment and graduation are plausible as TDP reduces students' accumulated financial burdens after they start college.

Ultimately, we are interested not just in students' college outcomes, but whether free college and other forms of financial aid increases students' long-term life outcomes. Since most students in the sample are only in their early twenties, it is a bit early to judge and we designed the project so that we can readily follow up with them in future years. At this point, however, we see no evidence of effects on, for example, employment.

Overall, these effects seems smaller than those found in prior studies (e.g., Deming & Dynarski, 2009). Moreover, the effects are clearly weaker than those found in the

program TDP was patterned after. The Pittsburgh Promise increased initial college entry by five percentage points and college persistence by 4-7 percentage points (Page et al., 2017).

With regard to high school outcomes, there is little prior research with which to compare. One key exception is another similar experiment, based in Canada, which also found positive effects on students' self-reported expectations and plans, but essentially no effects on high school academic outcomes (Fowler, Currie, Hébert, Kwakye, Ford, Hutchison, & Dobrer, 2009).

THE ROLE OF PERFORMANCE REQUIREMENTS, EXPERIMENTAL DESIGN, AND COMMUNICATIONS IN HINDERING EFFECTS

TDP's limited effects in high school were likely driven by decisions about design and implementation. In this section, we leverage our extensive quantitative and qualitative data to discuss how the performance requirements, small/temporary design, and communications may have limited TDP's effects on outcomes like high school GPA and initial college entry.

THE ROLE OF PERFORMANCE REQUIREMENTS

By reducing college costs, financial aid is expected to increase the likelihood that students choose to attend college (Deming & Dynarski, 2009; Goldrick-Rab, Harris, & Trostel, 2009). However, the requirements that sometimes

accompany financial aid may also reduce the share of students who receive it. Performance requirements, in particular, had the effect of excluding large numbers of students from eligibility for a TDP award. The average baseline GPA for students in the treatment was 1.8, far below the 2.5 GPA requirement. While establishing high expectations for students' academic performance may seem to provide a positive incentive, other research suggests that students also need access to the resources and information necessary to meet those expectations (Fryer, 2010; Duncheon & Relles, 2018; Gast, 2016; Knight & Mariano, 2013). Moving from the average GPA of 1.8 to the 2.5 threshold, in retrospect, would have been very difficult for many students. Only 21 percent ultimately met all the performance requirements.

Hypothetically, the performance incentives might still have played a useful role in inducing students to change what they do and become better prepared for college. As noted above, although students described increasing motivation and effort, this did not translate into improvements on the performance criteria. This suggests that student efforts may not have been sufficiently focused on what students needed to do to meet the requirements. For instance, when students said they “studied harder,” this may have meant spending more hours on homework, but meaningful engagement with homework and course content may require more support and direction to translate to higher grades. Many MPS high schools were under-resourced and MPS students often lacked access to adults, both within their schools as well as their families and communities, who could provide the types of support necessary to bridge the gap between increased effort and increased achievement. Looking at the results in Figures 2 and 3 more closely, there is a clear pattern. The outcomes on which we saw effects (e.g., FAFSA completion) required only sporadic or one-time actions, whereas the outcomes with no changes (e.g., GPA) arguably require sustained and fundamental changes in access to resources and supports and in students' habits.

Moving from the average GPA of 1.8 to the 2.5 threshold, in retrospect, would have been very difficult for many students. Only 21 percent ultimately met all the performance requirements.

Students did not respond to the performance requirements in the ways that economic theory might predict. Across a wide range of outcomes, we see no clear evidence that student responses were stronger near the thresholds (Harris, 2017) and the performance requirements excluded many students from receiving funding. If students are cannot respond effectively to the performance incentives, then the inclusion of performance requirements may need to be reconsidered.

THE ROLE OF THE SMALL AND TEMPORARY PROGRAM DESIGN

When new programs are being developed, it is common, and worthwhile, to try them on a small scale (i.e., a pilot program) and/or with the intent of providing rigorous evidence with which to judge the potential for scale up (i.e., a demonstration program). Large numbers of existing public programs started this way, being scaled up only when they had demonstrated some smaller successes. This was also the idea behind The Degree Project—to test whether and how free college could work.

The concern, however, is that, even if programs have a high degree of internal validity, small programs may lack external validity, meaning that the results from the demonstration program might not reflect what we could expect

at scale. Operating at a small scale may be a problem in cases where social interactions and spillover effects are a key part of the theory of action. With promise scholarships and free college, we hypothesized that spillover effects might come from changes made by school staff to improve the college-going culture of high schools (Holland & Farmer-Hinton, 2009; Roderick et al., 2011) and that these changes would partially drive impacts on student outcomes.

Demonstration programs are also temporary. This means that any additional investments of time and energy they might consider, to respond to program demands, have a smaller overall payoff—the long-term payoff is removed. For example, even on a small scale—in one school—school counselors might have been willing to change their practices if they had believed that those changes would benefit future cohorts of students. But the financial benefit of TDP was limited to only a single cohort, and counselors had to serve other cohorts at the same time.

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These problems are exacerbated when demonstration programs are set up as RCTs. Facilitating rigorous analysis and clear conclusions about causality was the motivation behind the design of TDP, i.e., to provide “gold standard” evidence. But RCTs only exacerbate other problems with demonstration programs, by reducing the scale even further and requiring that roughly half of potential participants not receive the intervention. Given the high cost of financial aid programs, there were only enough resources to do this for a single cohort, so no more than 30 percent of students in any school were ever involved in TDP. In contrast, in Kalamazoo and other places where promise scholarships have been implemented at scale,

nearly 100 percent of students were eligible in all schools, so that the potential for spillovers was much greater.

The broader lesson is that, depending on the theory of action, quasi-experiments may actually provide a better gauge on what is likely to happen at scale—for the simple reason that quasi-experiments are usually carried out with programs already operating at scale, on a permanent basis. Scaled programs have the advantage of building trust with future cohorts of students. This can reinforce effects by convincing students that the money will really be there for them in the future—what economists call “credible commitment”—which may be particularly important in programs, such as promise scholarships, where the potential benefits arise many years in the future. When a change in policy is seen as permanent, students and school staff may also have stronger incentives to respond. With TDP, there was little motivation for anyone to change what they were doing. To the degree that the effects of financial aid are driven by spillovers, and/or complementary supports, the effects estimated in experiments such as TDP will be lower than those same programs would generate if they were implemented at scale.

THE ROLE OF COMMUNICATIONS

Communications are an important, under-recognized aspect of all financial programs. In addition to conveying the requirements (if any) for receiving funds, the timing, scope, and content of communications can influence the way students think about and interpret aid. One side effect of the RCT design was to hinder communications. When programs are implemented at scale, program administrators can use mass communications such as billboards that easily reach not only eligible students, but also their parents, siblings, teachers, adult mentors, and others who have

an impact on students' lives. In an experiment, by contrast, communications have to be more targeted, and obtaining the same intensity is more costly and challenging.

The communications strategy

One way that Great Lakes attempted to address the limitations of a small and temporary design was by employing an extensive communications strategy with our target population – the students – and with school counselors as well. Great Lakes created materials, which went through an elaborate vetting process with the research team and program advisors, with the goal of communicating TDP's intent and conveying similar content to both students and counselors.

We obtained copies of all known written communications sent to students and counselors, coding them into the following categories: reasons for TDP; performance and other TDP requirements; on-track status; how to interact with peers, family, students, or school staff with regard to TDP; college finances; and general college access steps. Students received information about whether they, individually, were on-track to meet TDP requirements and counselors received lists of TDP students attending their schools, by their on-track status.

Communications were extensive but still perhaps not sufficiently personal or detailed to help students adequately prepare for college.

Most of the student information was delivered through letters and pamphlets. Great Lakes sent students an initial award letter to their home and school in the fall semester of the first year, then an on-track letter along with a Frequently Asked Questions brochure in the first spring. For the middle two years, students were sent two on-track letters and additional materials containing information on topics such as the cost of college, how to use the district's new college access centers, the importance of taking college preparatory classes, and tips for college visits. Students were sent seven letters in the fourth year of the intervention plus a pamphlet on the importance of the FAFSA, when many students were seniors. The increase in letters in the senior year was mostly due to the need to communicate the finer details of the program including requirements that became pertinent toward the end of high school (e.g., students could not fill out the FAFSA in the junior year).

The materials provided to students gave specific instructions about individuals with whom to interact (e.g., school counselors) and how to interact with them (e.g., ask about college preparatory classes). Text phrases included: "We highly encourage you to check in with your school counselor each semester to make sure you are on track to graduate on time and to ask any questions you may have." "When you get your class schedule from MPS, compare it to the list of recommended college preparatory classes. If you don't see any of the classes on your schedule, talk to your counselor." The messaging materials made it clear that the \$12,000 scholarship money was only available to students who met all the TDP requirements. Regular reminders of their status in relation to these requirements re-affirmed the requirements (Kim & Rifelj, 2017).

Communications to counselors mostly took the form of posters, flyers, and letters and were fewer in number and less specific. As with students, the most common counselor communication was about performance requirements, followed by encouragement for counselors to talk to students about the intervention and to talk to students about their on-track letters. The materials included text such as, "The more students and families know about The Degree

Project, the more likely they are to benefit from this opportunity,” “Please help us build awareness!” and, “Continue supporting your students.” While this text prompted counselors to interact with students, the communication strategy included no specific behaviors or actions. Given the importance of college-going social capital for many school communities and/or first-generation students, the absence of more specific guidance, directed toward new practices, may have been problematic (Kim & Rifelj, 2017).

Communications were extensive but still perhaps not sufficiently personal or detailed to help students adequately prepare for college (Kim & Rifelj, 2017). It is not clear that having Great Lakes send more, or more specific, information would have been helpful since different students face different barriers to college access and success. Counselors knew students on a more individualized basis and therefore, may have been better situated to work with students to share resources and help change their habits. But, given the goal of Great Lakes to isolate student responses to aid alone, counselors were not encouraged, or provided with resources, to help students significantly change their college-going behaviors. The onus for change was on the students.

The effects of communications

The communications described above were effective in the sense that most treatment students reported awareness of their eligibility and specific performance requirements. While this might not seem surprising, given the number and focus of the communications, understanding and remembering eligibility is a common problem with financial programs.

To explore whether communications contributed to program effectiveness, we carried out an additional statistical test using the survey data on the number of communications a student reported receiving (Harris, 2017). We interacted the number of TDP-related communications reported by each student across years with TDP treatment status.

This approach compares the effects of TDP for students who received more communications with those who received fewer communications. The number of communications varies because, for example, the letters from Great Lakes to some students may have gotten lost in the mail and some counselors may have been more aggressive in their outreach than others. Since the number of communications students receive and report in surveys is not random (e.g., some counselors indicated in interviews that they communicated more with students whom they thought would benefit most from TDP), we used an instrumental variables approach to provide greater confidence that the patterns we saw reflected a causal effect.¹⁵

Consistent with some prior research (Bloom, Hill, & Riccio, 2003; Oreopoulos & Dunn, 2012), the effects of TDP appear more positive when accompanied by more communications. Our results imply that if students had experienced an average of 10 communications (instead of a mean of 4), then the effect of TDP on initial college enrollment would have been positive, statistically significant, and meaningful in magnitude. The same pattern emerged when using other methods.¹⁶

All the various methods suggest that more communication raised awareness and made the program work more effectively. This reinforces the conclusion that the stunting of communications due to the small and temporary design may partly explain the limited effect during high school. At scale, communications about a program like this would have been almost omnipresent. In Kalamazoo the program was even advertised on billboards. Sending letters and occasionally calling only TDP students to the counselor’s office is probably not enough.

CONTEXT, SPILLOVERS, AND THE MECHANISMS OF FREE COLLEGE EFFECTS

The decisions made about design and implementation—the performance requirements, small/temporary design, and communications—help explain TDP’s limited effects. These decisions prevented the program from having the type of catalyzing effect on schools’ college-going culture that other programs (like the Kalamazoo Promise) have seen. Limiting TDP to just a single cohort of students across MPS and one grade of each school’s students made mass communications difficult and provided little incentive for school staff to alter established practices. Moreover, the performance requirements meant that most students had little incentive to change their habits in long-term, ongoing ways (e.g., attending class more regularly, taking better notes in class, and studying more often) that might have increased academic preparation for college. Any responses that did occur did not spill over to other students and staff.

In some respects, the TDP design and implementation was perhaps especially problematic in the Milwaukee context, which has a long history of stratifying college-going social capital within and among schools and a more simplistic push for district-wide policies to improve college-related best practices (Farmer-Hinton & Rifelj, 2018). TDP did not occur in a vacuum. School staff had limited resources to amend their college-going support systems; therefore, students lacked access to the school-based, college-going social capital and academic resources to meet the requirements. Below, we elaborate on how students and counselors perceived TDP and how their perceptions may have shaped their responses. This analysis provides a picture of what happened through the eyes of those involved.

SCHOOL STAFF AND STUDENT RESOURCES

School counselors often play a key factor in college-going success, particularly when students need college-going support (Bryan et al., 2011; Holland, 2015; McDonough, 1997; Plank & Jordan, 2001; Robinson & Roska, 2016; Roderick et al., 2011). In addition to their technical administrative and educative roles in the college application process, counselors can empower students with the college-going social capital and knowledge necessary to access college, and help them build college-related networks (i.e., access to people and programs that share college-related resources) outside of the home and school that students from more advantaged backgrounds tend to already have (American School Counselor Association [ASCA], 2012, Belasco, 2013; Education Trust, 2009; McDonough, 2005; Stanton-Salazar, 2011). As such, counselors are at the center of efforts to establish and change the college-going culture of schools.

Milwaukee school staff were limited in their resources to engage with students. Interviewed staff reported high case-loads, increasing responsibilities, and constraints on their time (Diamond, Rifelj, & Lustick, 2017). One school did not have a guidance counselor in TDP’s first year, and the counselor who was hired in the second year was the school’s first full-time counselor. Overall, the district had a student-to-counselor ratio of 345:1, which was 20 percent higher than the state average. Within the context of these already strained conditions, counselors were unlikely to add to their already full plates by, for example, designing systems and structures to support the

Counselors are at the center of efforts to establish and change the college-going culture of schools. ... Milwaukee school staff were limited in their resources to engage with students.

college aspirations and plans of 9th graders throughout high school when college-going high school seniors may have been a yearly priority.

Students in selective enrollment high schools received more institutional support, resources, and guidance than most students in non-selective high schools. Students in selective enrollment high schools reported access to concrete and critical information about how to prepare and plan for college that were largely lacking in non-selective schools. Students in selective enrollment schools also reported greater knowledge of course levels and had greater access to college preparatory curriculum.

Students also faced challenges that affected their responses to TDP. Although nearly all interviewed students were aware of the general principles of academic preparation (e.g., “studying hard”) in their freshmen and sophomore years, deeper forms of college-going knowledge were still largely absent (Reavis, Diamond, Farmer-Hinton, & Kellogg, 2017). For example, interviewed TDP students did not know their individual GPAs, how their classes were scheduled, what courses were offered at their schools, or whether they were enrolled in courses that prepared them for college (Reavis et al., 2017). This lack of knowledge reflects the underlying context of most of these schools: school staff had little time to work closely with students.

SCHOOL STAFF PERCEPTIONS AND RESPONSES

School-level conditions interacted with staff views of their students to shape the ways they responded to TDP. In the first year of the intervention, treatment school staff thought freshmen may be too young developmentally to appreciate the incentive (Kuttner & Rifelj, 2017). School staff viewed TDP requirements as achievable and were confident that students would be able to meet them. In interviews during the first and second years of TDP, school staff used words such as “easy,” “basic,” “doable,” and even “horribly low” to describe the requirements. This perception held across schools and years of the intervention (Kuttner & Rifelj, 2017). However, considering that the average student GPA at the onset of TDP was 1.8, these descriptors seem to discount the challenges students faced.

As the TDP intervention unfolded, the on-track data was central to how school staff made sense of TDP (Kuttner & Rifelj, 2017). Because they saw requirements as “doable,” interviewees used the on-track data as evidence of how well the program was working and about the motivation of their students. By the second year of the intervention, it became clear that few students were going to meet the minimum GPA threshold. School staff attributed these early results to students’ lack of motivation, understanding, and maturity (Kuttner & Rifelj, 2017). For example, one principal stated, “[They’re] just clueless about [TDP]...nobody I know in my entire life would ever throw \$12,000 [away]. Even if you didn’t want to use it right away. You’ve got plenty of time to make a decision, but what a gift!” The principal goes on to note that the low numbers are not the fault of the program or her school’s efforts, but the students themselves. In the second year of the program, this principal scaled back her TDP-related activities from the first year where she called each family and sent home a personalized letter to bringing up the scholarship only when already meeting with students and/or parents (Kuttner & Rifelj, 2017).

Staff in the three schools with the highest proportion of students meeting the requirements had more positive views about TDP and indicated their success—up to 65 percent were meeting the requirements—was due to the positive responses by their students (Kuttner & Rifelj, 2017). For example, a counselor in a high school with one of the highest college-going rates in the district and a large share of students meeting the requirements, reported being very positive about TDP in year one, as did most other MPS staff. By year two, she viewed high numbers of students

meeting requirements as a sign that students were making the connection between the scholarship and their GPA. Aligned with this perception of the program's efficacy, her school became one of the most active in relation to TDP, reporting that both staff and students brought TDP up often, they invited seniors to speak to students about how valuable the TDP's scholarship offer was, and they handed out \$12,000 novelty checks for TDP students to display on their lockers.

In summary, the on-track data shaped the ways that school staff engaged with students and families around the TDP

School-level conditions interacted with staff views of their students to shape the ways they responded to TDP. School staff who were disappointed with the number of on-track students reported engaging in fewer conversations with students and families

intervention. School staff who were disappointed with the number of on-track students reported engaging in fewer conversations with students and families. Conversely, when interviewed counselors felt TDP was working to motivate students, they viewed their students more positively and reported increased engagement around TDP. Counselors also attributed failure (or success) to students rather than reflecting on their own work practices including how they could support students in moving towards “success” based on TDP's requirements. Using on-track data as a tool for assigning blame to students or characterizing their abilities and motivation reinforced low expectations of students (Kuttner & Rifelj, 2017). Attributing a lack of program impact to student “gratitude”

or “laziness” or “maturity” can feed into existing assumptions about the resources and character of students, particularly students of color (Downey & Pribesh, 2004; Ladson-Billings, 2006; Ladson-Billings & Tate, 1995; Leonardo, 2013; Lewis & Diamond, 2015; Steele, Spencer, & Aronson, 2002; Steele & Aronson, 1995). Taken together, these forms of interpretation—engaging less with students, not reflecting on their practice, reinforcing low expectations of students—limited school staff's responses and TDP's spillover effects.

Aside from a handful of mostly superficial examples, TDP did not induce an increase in college-going activities by counselors and other staff. In the first three years of the intervention, school staff in treatment and control schools reported spending similar amounts of time on college visits, advisory classes, and meetings with students (Diamond et al., 2017). In addition, TDP did not induce a change in who counselors in treatment schools worked with.

College visits, advisory classes, and meetings with students provide help once students are applying to college. This support is helpful for students who have made it to 11th grade and still feel confident that college is an option for them (Diamond et al., 2017). However, the low average GPA in the district means that students needed substantial (and early) academic support to reach the 2.5 GPA required for the scholarship and be prepared for college acceptance and success. In other words, these activities are a case of “too little, too late” for students who were not already on a college-going path.

STUDENT PERCEPTIONS AND RESPONSES

The lack of resources, school-level supports, and spillover effects is also evident in students' perceptions about the program and their own responses to TDP. Mirroring reports from school staff (Kuttner & Rifelj, 2017), interviewed

students in years one and two of TDP reported no new school-based interventions to support academic achievement (Reavis, et al., 2017).

TDP students did report talking with school staff about TDP. However, these conversations tended to be shallow. Rather than engaging in substantive conversations about how to improve their college-going efforts, students often described conversations as a series of “encouraging phrases” to stay on track (Reavis et al., 2017). For example, an interviewer asked a student, “So, did she [counselor] talk to you about what kinds of things you have to do to go to college, or just the scholarship?” The student answered, “Just the scholarship.” Another student reported, “Occasionally they bring it up, something about The Degree Project or Wisconsin Covenant...The Degree Project is just like I get stuff in the mail and then they give us little things every once in awhile...like little things that say you’re achieving what you need for The Degree Project.”

The minimal level of TDP-related supports was also reflected in students’ understandings of how to improve their academic performance. A TDP student who was earning a failing 1.2 GPA in his freshman year shared how he planned to improve his performance, stating, “I gotta like do actual the work, pass tests, and just study hard, all day study hard. Do my homework, turn homework in, if you have late work ask the teacher if you’re still able to turn that late work in.” This student was determined to “push hard” so that he could earn a 3.5 or 4.0 GPA and have a full ride for college. This student articulates a desire to improve academically, but a GPA increase of this magnitude is not grounded in reality. The student reported conversations with family and school staff encouraging him to “shoot for higher grades” and “be above average,” but these conversations were lacking in real advice for how to raise his GPA. This student’s words and experience are a microcosm of TDP. He was aware of the performance requirements and motivated to meet them, but possessed only superficial knowledge of how to do so both on his own (e.g., by working harder) or by identifying and accessing enough specific supports made available by the school (e.g., tutoring) to effectively leverage his enthusiasm for improvement into results.

THEMES

We theorized that the program might translate to spillover effects by inducing staff to make intentional changes in the ways they engage with students in the college-going process. However, this did not happen. Instead, counselors for the most part continued with their work in a “business as usual” fashion that was inadequate to the needs of students and the demands of broad college access. The continuation of past practice appears to have been mostly driven by TDP’s small/temporary design, and by the performance requirements that limited eligibility. Even at scale and without the performance requirements, their working conditions, views of their students, and lack of formal supports or incentives from TDP still may have stunted any change in their practice.

Broader, pre-existing patterns in MPS schools also contributed to TDP’s limited effects.

Broader, pre-existing patterns in MPS schools also contributed to TDP’s limited effects. As demonstrated above, “business as usual” typically involved counselors interacting with students later in their high school careers, when their college-going pathways were set. In schools where college-going was not typical and intentional (i.e., non-selective enrollment high schools), students were not given the time and space to process college knowledge and postsecondary choices early or often enough. Opening up the college-going path to more students—with or without more aid—might be more effective if staff were more proactive (e.g., beginning to work with students in 9th grade

or before on their academic preparation) and their efforts were more personalized to students' distinctive needs (e.g., getting beyond blanket communications), as well as more substantive and sustained in ways that may help students change their habits.

This did not happen with TDP. Interactions with counselors were generally reactive, generic, and thin in ways that

It may not be possible to estimate the overall effects of full-scale promise scholarships with RCTs, even if, with our comprehensive experimental design, they are quite useful in understanding the mechanisms of those effects.

led everyone to act as they always had before. Students, regardless of treatment or control status, remained in contexts with limited resources and inadequate practices that had for so long led to low high school graduation and college-going rates. Few students responded to the scholarship and, to the degree they did, the program was not set up for effects to spill over to others and change school cultures. Despite aspirations and shallow encouragements to “try harder,” students lacked the tools to go through the difficult work of significantly increasing their academic preparation.

CONCLUSION: DESIGN AND IMPLEMENTATION MATTER WITH FINANCIAL AID, TOO

Financial aid has the potential to influence students in a variety of ways. First, financial aid can reduce the costs of college attendance. When communicated effectively, it sends the message to students that college is for them. Second, when aid is committed in advance, as with free college and promise scholarships, students' academic and college-going social capital could increase during high school, catalyzing a stronger college-going school culture and reinforcing the path to college and the long-term benefits that come with it. Free college can also reduce uncertainty about the price of college and limit administrative barriers to college resources.

In this study, which combined elements of all the above forms of aid, we found some, albeit limited, benefits. Consistent with prior research (Deming & Dynarski, 2009; Swanson et al., 2016), we found that students who received the funding were more likely to be attending college two years after high school and graduating from college. TDP also increased the number of discrete steps students took toward college enrollment, such as filling out the FAFSA and participating in other college access programs. However, TDP did not change students' habits in ways that would significantly boost their students' GPAs or high school attendance patterns, or their initial college attendance decisions.

We designed our study to understand how and why effects emerged or failed to emerge. Our analysis suggests that three aspects of the study design and implementation, combined with the specific features of the MPS context, worked against the success of TDP. First, the high school GPA and attendance requirements significantly limited the share of students who had a plausible chance of receiving funds. Second, the small and temporary design meant that TDP applied only to a very small share of students. TDP provided no additional resources or incentives to counselors and educators to increase support for students. Third, the program design precluded the mass communications to students and families that can occur in scaled-up programs. The letters and contacts by counselors mattered, to the degree they occurred, but that it would have been very difficult to match the intensity that is easily possible in the scaled-up programs that are more relevant to financial aid policymaking.

The performance requirements may have also played an unintended role in counselors' work and perceptions of students. For some counselors, students' inability to meet the requirements reinforced negative views of the students, such as thinking of them as lazy or unmotivated. The on-track data provided school staff with a blunt measure of their students' performance, which sometimes led staff to spend less time with students who were not meeting requirements and focus their attention instead on students they felt more confident would remain eligible. This shift in focus may have reinforced existing gaps between high- vs. low-achieving students rather than alleviating them.

The design of TDP also seems to have been mismatched to the context. Many students had very low GPAs to start with, and only vague knowledge of potential ways to improve their academic performance. Counseling offices were under-staffed and over-stressed, making it difficult for counselors to respond to student needs. These limits on counselors' time were unfortunate because students from low-income backgrounds, and those whose parents who have not attended college often rely on school-based resources to navigate the college-going process (Farmer-Hinton & Adams, 2006; McDonough, 2005; Stanton-Salazar, 2011; Stanton-Salazar & Dornbusch, 1995).

These findings point to one under-recognized part of our original theory: that the benefits of promise scholarships come through spillover effects, from one student to another, between students and teachers, and among educators themselves. Schools are social enterprises where expectations, attitudes, and behaviors are bound together in school culture. We tried to facilitate spillovers by randomly assigning entire schools to TDP rather than individual students, and by working with Great Lakes to develop a communications strategy that was the best possible under the circumstances. Despite these efforts, small pilot and demonstration programs, such as those studied with RCTs, cannot create the catalyzing effects we sometimes observe at scale because they apply to only one portion of a single cohort. It may not be possible to estimate the overall effects of full-scale promise scholarships with RCTs, even if, with our comprehensive experimental design (Harris & Goldrick-Rab, 2012), they are quite useful in understanding the mechanisms of those effects.

A larger lesson is that students need more than the promise of additional financial aid to increase their high school GPA. Students also need to be in environments that help them achieve the specified academic performance requirements. TDP promised one major resource—\$12,000 for college attendance—which increased students' motivation and aspiration for college. But TDP did not change the high school environments that are also part of the college-going process. To increase college enrollment, students need more support from their schools. Students need specific, ongoing information about how to meet college-related requirements. They need structured institutional support long before they become rooted in the paths that are unlikely to lead to academic success in high school or college. In the absence of these supports, interventions such as TDP might reinforce existing systems of class and/or racial stratification (Gamoran, 2010; Oakes, 2005; Kuttner & Rifelj, 2017) while maintaining deficit views or stereotypes of lower-achieving students or students of color who they believed would never meet the program requirements (Ladson-Billings & Tate, 1995; Leonardo, 2013; Steele, Spencer, & Aronson, 2002; Valencia, 2010; Lewis & Diamond, 2015). Rather than accepting or reinforcing the forces that produce such vast inequalities in students' college outcomes, financial aid and other programs need to be designed to combat them.

Students need more than the promise of additional financial aid to increase their high school GPA. In the absence of necessary supports, interventions such as TDP might reinforce existing systems of class and/or racial stratification.

College financial aid seems to be like everything else in schools. The effects of programs depend on their design, implementation, and context. In this case, designing the scholarship with performance requirements, especially those so far above the average level of performance, and implementing the program via a small-scale randomized trial without additional supports, likely undermined program effects. But, these findings also point to potential paths forward for existing and new scaled-up programs. Money makes college cheaper for individual students, and that is a start. To achieve their full potential, such programs will have to leverage broader structural supports in schools that help translate increased student motivation and effort in more productive directions.

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ENDNOTES

1. Some free college proposals also eliminate the FAFSA and the entire complex financial aid apparatus that creates administrative burdens for students and hinders college access (Bettinger et al., 2009; Dynarski & Scott-Clayton, 2006).
2. Last dollar means that TDP funds are applied last, after all other forms of aid, such as the Pell grant, have been included. The total aid package cannot exceed the total cost of attendance, which includes tuition, fees, books, transportation, room and board, and certain other college-related expenses. Therefore, students with maximum Pell Grants plus other grant aid, for example, could receive less funding than the maximum allowed by TDP. For students who already had grants and loans covering the official cost of attendance, students would generally experience a reduction in loans, but no additional cash flow in the short term.
3. These numbers are based on preliminary anonymized group-level data from the University of Wisconsin at Milwaukee only. The loan reduction is expected given that the grants reduce the need for loans. A similar ratio of grant-to-loan reduction was found in another financial aid experiment (Goldrick-Rab, Harris, Kelchen, & Benson, 2016). Estimating the TDP effects on aid packages of students attending two-year colleges is more difficult. Based on financial aid rules, it is almost certain that most students receiving TDP funds and attending two-year colleges paid no tuition and fees over the first several years. Some likely also received checks covering part of their living expenses (up to the cost of attendance). We are continuing to seek data to understand how aid was packaged.
4. It is also worth considering the schools available and how students sort into them. Four of the 36 TDP sample schools can be considered selective admissions in that students have to apply and meet academic requirements. Partly as a result, college-going rates vary greatly across high schools, ranging from 10 to 88 percent for on-time college enrollment, prior to TDP. Milwaukee is also home to a broad array of charter, inter-district choice, and private schools with public funding. Twenty of the 36 TDP schools are some form of traditional public schools and the others are charter schools, which operate semi-autonomously from MPS and have smaller enrollments. Randomization of high schools was stratified by the pre-treatment school-level college-going rate of high schools, so that, for example, half of the selective admission high schools were guaranteed to be in the control group and half in the treatment group.
5. The distinction between ITT and treatment-on-treated (TOT) is blurred in this case because all students who were assigned to treatment were sent a letter offering TDP. In other words, essentially everyone received a plausibly meaningful treatment. Later in this report, we discuss a modified version of the TOT, defining treatment as meeting the performance requirements and being sent a congratulatory letter from the program administrator (Great Lakes). The goal of this analysis is to help distinguish the effects of the offer from the receipt of the funding, the latter of which is usually the focus of financial aid studies. Given that all students are partly treated, the usual exclusion restriction assumption of the TOT may not hold. However, given that the results we present later suggest there were limited effects on high school outcomes, this assumption may still be reasonable. See additional discussion below.
6. We also found no effects on average GPA. These results are not shown because they are on a different scale than the other variables.

7. The size of the first effect (+0.15) implies that one out of six TDP students participated in one additional non-TDP college access program as a result of TDP. The size of the second effect (+0.31) suggests that one in three TDP students applied to one additional college.
8. The Massachusetts Adams Scholarship studied by Goodman (2008) is somewhat different in that it was restricted to in-state public colleges whereas TDP included private colleges. Both allow use of funds at two-year colleges.
9. See footnote 5 regarding this estimate of the modified treatment-on-treated (TOT) estimate. Note that TOT estimates are less precisely estimated than ITT estimates. Therefore, the earlier estimate could not have become statistically significant in this case.
10. Among the students we interviewed about the late disbursement process, none suggested that this affected their enrollment. However, these interviews involve a small share of students and disproportionately included students enrolled in college.
11. Since the funding flows through the aid package, the form in which students received the money likely differed somewhat, but this difference would not have been clear until the summer before college. Even then, it is unclear how they would be different.
12. We specifically examined employment, earnings, teen pregnancy, and incarceration. These outcomes are commonly studied by economists as measures and predictors of long-term life outcomes that are closely linked with, and partly caused by, differences in high school and college outcomes that are the primary subject of this analysis. A concern in other disciplines, and within our interdisciplinary research team, is that choosing to study outcomes like incarceration and teen pregnancy in this sample of students, overwhelmingly students of color, can imply deficit thinking or bias against these groups.
13. Students who were ineligible by junior year stopped receiving on-track updates and instead were sent information on the range of postsecondary options, from apprenticeship to a four-year college.
14. Note that students who dropped out or transferred would necessarily receive fewer communications than others, and this of course would be correlated with the probability of going to college. We therefore also used the number of communications reported just for the first two years.
15. The general idea of instrumental variables (IV) is to find a variable that is correlated with the treatment, but which itself has no direct effect on the outcome. In this part of the analysis, the treatment is the number of communications. To address non-random variation in communications, we used as an instrument the number of communications that other students received in the same school. The identifying assumption is that the number of communications received by student A did not affect the outcomes of student B. This is not a perfect instrument. While it is highly correlated with the number of communications other students received, there may have been spillover effects across students. In the IV method, we also controlled for race/ethnicity, gender, family income, GPA, attendance, and other measures.
16. One reviewer suggested interacting treatment with the school-level average number of communications instead of using the latter as an instrument. The results were similar to the IV. Also, we carried out “placebo” tests

looking for interaction effects between student demographics, school climate measures, and treatment effects. We found null effects in these other cases, reinforcing that our results reflect the influence of communications. The range of communications students reported was 0 to 19.

17. These numbers are based on the numbers of certified staff reported to the Wisconsin Department of Public Instruction for the 2013-14 and 2014-15 school years (averaging the two years together). When other pupil services positions such as school psychologists, social workers, and nurses are included, the MPS ratio drops to 190:1, which is slightly below the state figure of 229:1 and comparable to the ratios for other large districts in Wisconsin. This suggests that the support structures in Milwaukee are devoted more toward solving the immediate needs associated with high-poverty communities than preparing students for college. Similar constraints on MPS counseling were reported in both treatment and control schools (Diamond, Rifelj, & Lustick, 2017).
18. Treatment and control school counselors both reported working more with outside agencies than with people internal to their schools. When they worked collaboratively, they reported working 64 percent of the time with external actors (e.g., community partners, college representatives, Great Lakes) across all dimensions of their work (e.g., college planning, communications about college) compared to 34 percent with internal actors, such as teachers (Diamond, Rifelj, & Lustick, 2017). When counselors did work with internal actors, they were most likely to work with classroom teachers (57 percent of the time) and less likely to work with school administrators (34 percent of the time) and other staff members (9 percent of the time).

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The Brookings Institution
1775 Massachusetts Ave., NW
Washington, DC 20036
Tel: 202.797.6090
Fax: 202.797.6144
brookings.edu/governance

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