



# Can the promise of free education improve college attainment? Lessons from the Milwaukee Area Technical College Promise

**Drew M. Anderson**  
RAND Corporation

**David B. Monaghan**  
Shippensburg University of  
Pennsylvania

**Jed Richardson**  
University of Wisconsin-Madison

This study found that the MATC Promise increased college attainment by encouraging Milwaukee high school students to access state and federal aid, and to consider matriculating to their local two-year college. The MATC Promise exemplifies the last-dollar model of college aid. If seniors at Milwaukee area public high schools complete academic milestones, apply for financial aid, qualify based on low family income, and matriculate to Milwaukee Area Technical College (MATC), then the Promise covers any remaining tuition charges. The message promoting free college was the program's main element, since the funding support for eligible students came primarily from existing state and federal aid. We studied outcomes for the first four graduating classes after the Promise was launched, compared to the trend in Milwaukee for the previous six graduating classes. The rate of matriculation to MATC increased from 10 percent to 15 percent. There was no such increase in matriculation to other technical college districts around the state, suggesting that the increase was caused by the Promise. The increase in enrollment was larger among lower-income students and those in the urban Milwaukee Public Schools. Those students were more likely to apply for financial aid earlier, regardless of whether they ultimately qualified for the Promise, and their rate of matriculation to any college increased from 45 percent to 49 percent. There was no indication that attracting additional students to college led to lower graduation rates, though we were limited to examining credentials earned in two years or less.

VERSION: April 2024

Suggested citation: Anderson, Drew M., David B. Monaghan, and Jed Richardson. (2024). Can the promise of free education improve college attainment? Lessons from the Milwaukee Area Technical College Promise. (EdWorkingPaper: 22-614). Retrieved from Annenberg Institute at Brown University: <https://doi.org/10.26300/jdwn-6m65>

# Can the promise of free education improve college attainment? Lessons from the Milwaukee Area Technical College Promise

Drew M. Anderson

*RAND Corporation*

David B. Monaghan

*Shippensburg University of Pennsylvania*

Jed Richardson

*University of Wisconsin-Madison*

Updated: April 2024

Contact: drew.anderson.economist@gmail.com

---

## Abstract

This study found that the MATC Promise increased college attainment by encouraging Milwaukee high school students to access state and federal aid, and to consider matriculating to their local two-year college. The MATC Promise exemplifies the last-dollar model of college aid. If seniors at Milwaukee area public high schools complete academic milestones, apply for financial aid, qualify based on low family income, and matriculate to Milwaukee Area Technical College (MATC), then the Promise covers any remaining tuition charges. The message promoting free college was the program's main element, since the funding support for eligible students came primarily from existing state and federal aid. We studied outcomes for the first four graduating classes after the Promise was launched, compared to the trend in Milwaukee for the previous six graduating classes. The rate of matriculation to MATC increased from 10 percent to 15 percent. There was no such increase in matriculation to other technical college districts around the state, suggesting that the increase was caused by the Promise. The increase in enrollment was larger among lower-income students and those in the urban Milwaukee Public Schools. Those students were more likely to apply for financial aid earlier, regardless of whether they ultimately qualified for the Promise, and their rate of matriculation to any college increased from 45 percent to 49 percent. There was no indication that attracting additional students to college led to lower graduation rates, though we were limited to examining credentials earned in two years or less.

---

We thank the Wisconsin Higher Educational Aids Board and the Wisconsin Department of Public Instruction for assistance with data. This research was approved by the RAND Corporation Human Subjects Protection Committee. This article represents the views of the authors only. This research does not relate to Drew M. Anderson's current employment at Amazon.

## 1. Introduction

College promise programs offer to cover students' tuition, but they can promote college enrollment without spending a dollar. Under the so-called last-dollar tuition promise model, the promise encourages students to access existing college aid, with the guarantee that the promise program will cover any leftover tuition charges. At most community colleges, state and federal aid fully cover tuition for low-income students, so there is no leftover dollar to pay. But students may not know that, or they may not complete the complicated steps to apply for aid. The promise program provides a message of encouragement and an offer of support to all students, in addition to providing small amounts of monetary aid to some qualifying students.

Last-dollar community college promise programs had been implemented over 100 communities and several states as of 2020 (Perna and Leigh, 2020). Their popularity is not surprising, since these programs can be a cost-effective strategy to increase college enrollment and local economic development.

One drawback of these programs is that they may add complexity to an already confusing environment of paying for college (Monaghan and Attewell, 2023; Monaghan, 2023). The programs often impose requirements on high school attendance or grades that may help students prepare for college, but are not technically required to access the first-dollar aid coming from state and federal sources (Monaghan and Coca, 2023). That added complexity is likely to be more burdensome for the students who are less likely to receive any funding from the promise program. For example, first-generation college students tend to be less academically prepared for college, struggle to get their parents' information to complete applications, and qualify for more need-based aid when they do apply (Feeney and Heroff, 2013; McKinney and Novak, 2014).

Another drawback of these programs is that they may redirect enrollment to a local community college without increasing college enrollment overall. As a result, students may be less likely to graduate from a college that is not a good fit for them.

As last-dollar community college promise programs proliferate, it is important to know whether this model works and for which students. There have been relatively few studies estimating their impact, but there is some evidence that these programs can increase college

attainment and reduce inequality (Li and Gándara, 2020; Bell and Gándara, 2021). Researchers and practitioners expect that programs can have positive impacts without providing new aid (Andrews, 2014; Miller-Adams, 2015; Harnisch and Lebioda, 2016; Billings, 2018; Perna et al., 2020). That type of effect was demonstrated convincingly by an intervention that guaranteed free tuition at a state university for low-income, high-achieving high school students (Dynarski et al., 2021).

This study provides new evidence on a typical last-dollar community college promise program. Introduced in 2016, the Milwaukee Area Technical College (MATC) Promise guarantees two years of tuition coverage for urban and suburban high school students in Milwaukee, Wisconsin. To qualify, students had to apply to the Promise, file the Free Application for Federal Student Aid (FAFSA) and have low enough family income to qualify for the Pell Grant, meet several academic criteria during high school, and enroll full-time at MATC.

The MATC Promise offers a test of whether encouragement, information, and support can increase rates of community college matriculation. Because relatively few students would meet all the eligibility criteria, and most of the eligible students would qualify for enough public grant aid to cover MATC tuition, it was unlikely that the Promise would provide substantial financial support to many students. The Promise did provide FAFSA workshops throughout the community (Milwaukee Area Technical College, 2015), as well as an incentive to attend MATC.

MATC is a large institution offering job training, collegiate transfer, and associate's degree programs. In 2015, it was the destination of one out of three college-going high school graduates from Milwaukee Public Schools (MPS). The MATC district is made up of 22 public school districts, ranging from suburbs to central urban MPS, with major differences in resources and outcomes (Goldrick-Rab, 2016). For example, in 2015 the rate of college-going among MPS graduates was 45 percent; in the rest of the Milwaukee area, the rate was 70 percent, similar to the rate in Wisconsin overall and in the United States (see Table 1).

The Milwaukee area's economic diversity offers a test of whether the program is effective at reaching students with lower family income and students at under-resourced school districts. The public schools in Milwaukee were the most racially segregated the third most economically

segregated of any city in America, according to a 2018 study (Potter, 2022). An earlier attempt to raise college attainment with a tuition promise had no effect, partly due to insufficient college counseling and a lack of resources in MPS (Harris, 2017; Harris et al., 2020). Wisconsin has an effective need-based financial aid program at the state level, though in several years it has lacked funding to serve all eligible students (Anderson, 2020b).

We estimated the MATC Promise’s effects on rates of applying for federal and state aid, rates of enrolling in college, and rates of completing a college credential within two years. We tested whether the incentive to enroll at MATC reduced student rates of enrollment at four-year colleges. To better understand which students the Promise was reaching, we estimated impacts separately for students in urban Milwaukee and for students with low family income.

To estimate the effects of the MATC Promise, we used an interrupted time series approach. Focusing within Milwaukee, we compared high school graduates who were potentially eligible for the Promise to students who graduated just before the Promise was implemented. We modeled trends in college outcomes using data on six cohorts of graduates before the Promise and four cohorts after the Promise. The model tests for a discontinuity between the two fitted trend lines at the point when the Promise was introduced for the class of 2016.

We saw a clear break in the trend of local technical college enrollment, and we checked if a similar break occurred for other technical college districts in Wisconsin. We found no evidence of that, so we concluded that the changes from 2015 to 2016 in Milwaukee were caused by the MATC Promise. We cannot rule out that the effects reflect other changes that would have occurred from 2015 to 2016 in Milwaukee absent the Promise, but we do not know of any such changes. We rule out several possible confounders in Section 4.3.

According to our results, the MATC Promise increased enrollment at MATC by 5 percentage points, from 10 to 15 percent of Milwaukee high school graduating seniors. About half of the increase came from students who would have otherwise not attended college. The remainder was a reallocation of students who would have enrolled at other colleges and universities. There was no evidence that drawing in new students decreased graduation rates in the short term.

The effects of the Promise were concentrated at MPS schools and among lower-income

families, where the Promise increased students' matriculation to MATC by 6 to 7 percentage points. The Promise increased the rate of on-time financial aid application for these students by 5 percentage points. Most remarkably, new MPS students drawn into college by the Promise were more likely to graduate in two years than the pre-Promise average. Even though the promise arrived late in students' high school careers, it helped students match with a college where they could succeed.

Our results indicate that the Promise drew 430 students to MATC each year, 200 of whom would not have attended college. About 170 students met all the requirements of the Promise (Milwaukee Area Technical College, 2020). Based on the eligibility requirements, we estimate that most 26 of these students received funding (15 percent, see Section 3.2). The impact of the Promise therefore extended beyond the number of scholars enrolled in the program and far beyond the number of students funded by the program.

Our results suggest that the Promise's impacts derived from students' realization that they could attend MATC for free. Since that was true before the Promise, we can also conclude that the complexity of the financial aid system had depressed enrollment prior to the Promise's messaging campaign. The MATC Promise had some complexity of its own, and it is possible that promise programs with even fewer eligibility rules and application steps might have a larger impact.

Section 2 discusses last-dollar community college promise programs. Section 3 provides details on the MATC Promise. Section 4.1 discusses our data and empirical approach to estimating the effects of the Promise. Section 5 describes the results. Section 6 concludes with a discussion of the state of research, and how our findings might inform policymaking in Milwaukee and the nation.

## **2. Background on last-dollar community college promise programs**

A full history of promise programs is beyond the scope of this paper, but Millett et al. (2020) and Miller-Adams (2021) both provide excellent summaries. Perna and Leigh (2018) organize promise programs into seven types. The unifying theme across programs is college affordability, but programs vary widely in the amount of aid they provide and at which colleges it can be used, as well as in the eligibility criteria and application steps.

Last-dollar community college promises are the most common type, representing 116 out of the 425 programs in the database of Perna and Leigh (2020). Anderson (2019) and Rosinger et al. (2021) also classified college promise programs and identified last-dollar community college programs as an important and growing type. In this section, we focus on that type and discuss some open questions about its effectiveness.

### *2.1. Potential effects of last-dollar community college promise programs*

The design of a promise program consists of several elements: the way it defines eligibility, what it requires of applicants, the message it sends, and ultimately the support it provides. All of these elements combine to determine how effective a program might be toward its goal of promoting college attainment in a community.

Most promise programs are place-based. The place could be a city, a community college district, or a state. The programs are often named for that place, which communicates that any student who lives there might be able to benefit. Most promise programs impose additional requirements. Common ones include that a student have recently graduated from a local public high school and that they complete applications to the program, the FAFSA, and to college. Some promise programs require that students meet academic and community service requirements or have a low family income. The promised tuition support may be limited, say to two years at a community college, and ongoing eligibility may depend on reapplying and having a low income. Programs communicate the message of free college, and other program details, through a combination of school staff, public advertising, and text or email messaging to students (Monaghan, 2023; Kramer, 2020).

Last-dollar promise programs work within a system of state and federal need-based aid based on the FAFSA (Office of Postsecondary Education, 2017; National Association of State Student Grant and Aid Programs, 2021). Public need-based programs calculate grants using FAFSA information on family income and other factors, but not the tuition charges a student faces. It can be hard for a student to predict how much of their costs will be covered by aid and how that amount might vary year-to-year. Last-dollar programs send a simple message that tuition will be covered, at a specific college, for a set amount of years.

The way students respond to a promise will be shaped by the other resources and knowledge

available to them. A message promising free tuition could promote equity by increasing college-going among students from lower-income families and racial/ethnic minorities. These students are at risk of under-investing in college (Bulman and Cunha, 2021), at least partially because they systematically overestimate the price of college (Grotsky and Jones, 2007; Horn et al., 2003). Academic eligibility requirements might provide an incentive for students to invest in preparing for college, but students and teachers may not have untapped capacity to significantly improve grades (Monaghan and Coca, 2023; Rifelj and Kuttner, 2020). The guarantee of free tuition might not be enough to get students to complete the FAFSA, a form whose complexity clearly keeps some students from accessing aid and succeeding in college (Dynarski and Scott-Clayton, 2006; Mishory et al., 2020; Kofoed, 2017; Bahr et al., 2018). Some promise programs provide FAFSA completion support, which tends to have positive impacts on college going even without promising additional aid (Bettinger et al., 2012; Dynarski et al., 2022a; Carrell and Sacerdote, 2017; Bird et al., 2021).

A tuition promise may not be enough to support degree completion. Even if a promise program is successful at getting students to access state and federal aid to fully cover tuition, there are typically significant additional costs of attendance not covered by aid or the promise. Students drawn to enroll by a promise could still drop out because of non-tuition costs: books, supplies, living expenses, and forgoing full-time work (Kelchen et al., 2017; Ma and Pender, 2021). Students might lose access to the promise at several points because they fail to meet eligibility requirements, application steps, or they drop to part-time or non-qualifying enrollment. Even if students stay eligible and involved, most promises are limited to two years of support, and community college degrees typically take longer to complete (Shapiro et al., 2016).

The effect of each design feature depends in part on how salient that feature is to students as they make decisions. If the benefits of the program are emphasized in messaging, then even students who are likely to be ineligible might become more interested in college. While that might lead to an increase in college matriculation, those same students might become disillusioned and leave college when they do not qualify for aid from the promise. If the benefits of the promise are emphasized without clear communication of the application process, then some students who are likely to be eligible might fail to complete the necessary



steps to receive the benefits, weakening the program’s impact.

The focus on community colleges is an important element of the message. A community college promise might draw students away from universities and reduce the likelihood that they will attain a bachelor’s degree (Goodman, 2008; Goodman et al., 2017; Cohodes and Goodman, 2014; Pretlow et al., 2022; Mountjoy, 2022; National Student Clearinghouse, 2022). Students on the margin of going to college who are drawn in by a promise might not progress to credit-bearing coursework (Pluhta and Penny, 2013) and might not graduate at the same rates. However, the promise may raise awareness of community college as an option among students who mainly hear about elite universities and residential four-year colleges from news and pop culture. Making it clear that there is a low-cost local option they can access is a potentially important message.

## *2.2. Evidence on effects of last-dollar community college promise programs*

The discussion above raises several key questions for research. To what extent do last-dollar community college promise programs increase rates of FAFSA filing? College matriculation? Which students respond? Do last-dollar community college promise programs reduce inequality? To what extent are increases in community college attainment a result of drawing students from non-enrollment, as opposed to drawing students from enrolling at other colleges? Do students who matriculate end up graduating? The discussion also suggests we should test for these effects on all students in the community, since students who are not ultimately eligible still received some encouragement, information, and potentially new community supports brought about by the promise program.

A few key themes emerge from research on last-dollar community college promise programs across several contexts. Researchers found increases in matriculation to the local community college Pluhta and Penny (2013); Li and Gándara (2020) even when most students did not receive financial support from the program (Carruthers and Fox, 2016). Added counseling had a positive impact on college attainment beyond the tuition support alone Ratledge et al. (2021). However, some studies did not find evidence of positive effects of promise programs (Ruiz et al., 2020) or of added counseling Li and Gándara (2020).

Statewide free community college programs show what local programs might look like

at scale. At least 12 states have statewide last-dollar community college tuition promises (Callahan et al., 2019; Davidson et al., 2020). The programs in Oregon and Tennessee have been most rigorously evaluated, and both have shown positive effects on matriculation (Gurantz (2019); Nguyen (2020)).

Promise programs may have side effects. Some of these programs appeared to divert students from universities to community colleges (Carruthers and Fox, 2016), while others increased bachelor's degree completion even while only providing community college aid (Bell and Gándara, 2021).

Effects may develop and change over time. Some programs tended to have larger effects during their first cohort (Gándara and Li, 2020). Over time, the effect of the program might operate by changing the composition of students in the area as families move in to take advantage of the program benefits (Leigh and Gonzalez-Canche, 2021; Sohn et al., 2017).

Looking beyond college promise programs, there is strong evidence that lowering the price of college through financial aid increases attainment for low-income students (Dynarski et al., 2022b; Page and Scott-Clayton, 2016; Nguyen et al., 2019). Lower community college tuition also increased enrollment (Denning, 2017; Acton, 2021). The amount of financial aid students qualify for can change year-to-year, so providing a guarantee that tuition will be covered can be beneficial (Dynarski et al., 2021; Burland et al., 2022).

### **3. The MATC Promise**

#### *3.1. Milwaukee Area Technical College (MATC)*

MATC is a part of the Wisconsin Technical College System (WTCS). Wisconsin is divided into 16 technical college districts that are each made up of several public school districts. The MATC district covers the urban and suburban Milwaukee area.

WTCS institutions are not limited to vocational and technical studies. In the 2015-16 school year, the majority of MATC students were working toward collegiate transfer or associate's degree programs (Wisconsin Legislative Fiscal Bureau, 2017).

Wisconsin high school graduates have higher rates of matriculation to two-year colleges (including both WTCS and the University of Wisconsin two-year campuses) than the nation (35 percent in Wisconsin versus 25 percent nationwide).

The MATC graduation rate was the lowest of all 16 WTCS institutions, and the MATC Promise was introduced in an effort to revitalize both Milwaukee and MATC (Monaghan and Coca, 2023).

### *3.2. MATC Promise eligibility and requirements*

Table 2 describes the MATC Promise as it was introduced in September 2015 (Milwaukee Area Technical College, 2015). To be eligible, a student had to live in the MATC district, comprised of 22 public school districts. There was a Promise application due by December 1 of the student's senior year. They had to file the FAFSA by March 15 of that year and be eligible for the federal Pell Grant (discussed in more detail below). Students had to have a 2.0 grade point average of 2.0 or higher and attendance of 90 percent or higher for their senior year, followed by on-time graduation. Before enrolling at MATC, students would have to score 16 or higher on the ACT exam.

The student could take up the Promise by enrolling full time in MATC (minimum of 12 credits per semester). To maintain Promise eligibility, a student would need to maintain a grade point average of 2.0 or higher in college courses, complete eight hours of service each semester, and attend mandatory workshops for academic and career counseling. To maintain the Promise in the following year, the student would have to file the FAFSA again and be eligible for the Pell Grant. Then the Promise would provide last-dollar tuition support for up to two years of college.

### *3.3. MATC Promise benefits*

The Promise income criteria required a value below 3,000 for the Expected Family Contribution (EFC) on the FAFSA. The EFC is an index of family financial resources available to pay for college. For high school students, the main components of the EFC are family income and assets which increase the EFC, and other family members in college which decrease the EFC. An EFC of zero qualifies a student for the maximum amount of state and federal need-based aid, and aid is scaled down for higher EFC values.

Among students with an EFC below 3,000, tuition at MATC would be covered by state and federal grant aid for about 85 percent of students, leaving 15 percent with tuition bills that could be covered by last-dollar aid. Tuition and fees at MATC in 2016-17 for most

students amounted to \$188 per credit. Two full-time semesters cost between \$4,512 (for 24 credits) and \$5,640 (for 30 credits). Of students with an EFC below 3,000 in that year, 70 percent had an EFC of zero. An EFC of zero qualified the student for \$5,815 in federal Pell Grant aid and \$1,084 in state-funded Wisconsin Grant aid for a total of \$6,899 in public aid (Federal Student Aid, 2016; Wisconsin Higher Educational Aids Board, 2016). Another 15 percent had an EFC low enough to qualify for at least \$5,640 in aid to fully cover MATC tuition and fees (Office of Postsecondary Education, 2017). Students with the maximum Promise-eligible EFC of 3,000 qualified for \$3,599 in public aid. Therefore we estimate that the maximum the Promise might provide to a student in 2016-17 was around \$2,040.

### *3.4. MATC Promise messaging and organization*

The Promise is funded by private donations to the MATC Foundation, which promotes the program as a way for donors to help build Milwaukee's economic and civic future.

Students and families could hear about the program in several ways, beginning with the initial announcement in September 2015, promoted by MPS, MATC, and local news outlets (Herzog, 2015). The primary communications flowed through schools and counselors. Students also received email reminders around key deadlines. In its marketing, MATC emphasized the simple message of two years of free tuition (Monaghan and Coca, 2023). Milwaukee mayor Tom Barrett and US Senator Tammy Baldwin each held press conferences with the president of MATC to encourage Promise applicants and others to complete the FAFSA in early March 2016 (Milwaukee Area Technical College, 2016; Dikanovic, 2016).

MATC also invested resources in helping students meet the academic and application criteria and in preparing them to manage college obligations. MATC worked with local districts to assist students in completing the FAFSA and to provide mentorship, academic advising, career counseling, ACT tutoring, and instruction in financial literacy (Milwaukee Area Technical College, 2015).

### *3.5. College-going and college aid in Milwaukee*

Table 1 is referenced several times. It describes the characteristics and college outcomes of the high school graduating class of 2015 in MPS, the MATC district, Wisconsin, and the United States.

Milwaukee is the state's largest city, with a history of uneven access and quality of education by race and socioeconomic status (Farmer-Hinton and Kellogg, 2022; Goldrick-Rab, 2016).

Milwaukee is more racially diverse than Wisconsin or the United States. In the class of 2015, 55 percent of MPS high school graduates were Black, and 26 percent were Hispanic or Latino. Those percentages were 34 percent Black and 20 percent Hispanic or Latino in the MATC district, 10 percent Black and 12 percent Hispanic or Latino in Wisconsin, and 16 percent Black and 26 percent Hispanic or Latino nationwide. Black and Hispanic or Latino students make up about half of MATC enrollment (WTCS, 2020).

The rates of economic disadvantage and non-college-going were concentrated in a similar pattern: highest in MPS, higher in Milwaukee than the rest of Wisconsin, and lower in Wisconsin than nationwide. The rate of students receiving free or reduced-price lunch during high school was 59 percent of students in MPS, 46 percent in the MATC district, 41 percent in Wisconsin, and 54 percent nationwide. Less than half (45 percent) of MPS graduates matriculated to college in the first year after high school, compared to 61 percent in the MATC district, 70 percent in Wisconsin, and 69 percent nationwide.

College counseling resources tend to be less available in schools serving lower income areas, like much of MPS. The lack of resources overlaps with greater Black and Hispanic or Latino student populations, threatening to worsen inequality. School administrators and counselors are likely to be the primary source of college-related information for students whose parents have lower incomes and did not attend college (Rifelj and Kuttner, 2020).

The MATC Promise is not the first program to address college affordability in Wisconsin. Students are also eligible for state-funded and philanthropic aid that supplements the Pell Grant. Technical college students who received \$1,000 in Wisconsin Grant aid had a higher likelihood of staying enrolled and completing degrees (Anderson, 2020b). The privately-funded Wisconsin Scholars Grant offered \$1,800 per year, randomly awarded to a subset of recent high school graduates after they have matriculated full-time and received a Pell Grant. It did not increase rates of two-year college completion for early cohorts of recipients starting in 2008 (Anderson and Goldrick-Rab, 2018; Anderson et al., 2020). Contrary to a college promise, the Wisconsin Grant and Wisconsin Scholars Grant both represent a test of funding

only, with no added requirements beyond the FAFSA, and limited messaging or student supports.

Another private grant, the Degree Project, was a first-dollar free college promise (Harris et al., 2020). It was offered to high school freshmen in the class of 2015 at half of the high schools in MPS. The schools were randomly selected. The Degree Project covered the full cost of attendance, including living expenses, at Wisconsin colleges and universities. Students had to meet several academic requirements during high school. The Degree Project did not meet its goals of increasing college attainment and reducing inequality, for several reasons. Academic requirements and the random selection constrained the program's message and institutional reach. A one-time demonstration for only half of the high schools had limited potential to cause lasting change to support college-going in the community. Students involved in the Degree Project did not gain a better understanding of the complicated process of financing college (Reavis, 2022).

The challenge for the MATC Promise is to deliver a clearer message of affordability to the same community, while offering fewer dollars of aid than any of these three programs, and limiting the focus to just one college.

### *3.6. Potential impacts of the MATC Promise*

MATC leaders hoped the Promise would boost MATC enrollment by 1,000 to 3,500 full-time students matriculating directly from Milwaukee high schools each year (Herzog, 2015). Ultimately, an average of 170 students per cohort would meet all the requirements of the Promise over its first three cohorts of operation (Milwaukee Area Technical College, 2020). Still, the Promise could have important effects at several stages before and after matriculation.

The Promise application deadline in December got high school seniors thinking about and preparing for college earlier than they otherwise would. MATC reported that 2,944 Promise applications had been filed by the December 1, 2015 deadline, less than three months after the program was announced (Milwaukee Area Technical College, 2015). If all 2,944 applicants from the class of 2016 enrolled at MATC, that would represent a doubling of MATC matriculation from the class of 2015 to the class of 2016. It would also bring the rate

of two-year college enrollment in Milwaukee even with the state average of 35 percent.

The academic and ACT requirements, along with mentoring and counseling, could have encouraged some students to reallocate time and effort toward preparing for college academically. However, research showed students' grades and attendance did not improve in response to the academic requirements. Monaghan and Coca (2023) compared the changes from 11th to 12th grade among high school classes in Milwaukee, and found that the students in cohorts after the Promise was introduced did not differentially improve their grades or attendance relative to students in cohorts before the Promise was introduced.

The FAFSA deadline in March might increase access to state aid, which is offered first-come first-served (Anderson, 2020a). The FAFSA completion workshops might increase access to state and federal aid by ensuring students complete their FAFSA and do it correctly.

The focus on MATC could get students to consider that institution, when they otherwise would have attended another college or no college at all. The focus on full-time enrollment could encourage students to take more credits than they otherwise would have at MATC. The service and coaching requirements during college might help some students stay engaged. And finally, the financial support for those who qualified might have increased persistence toward a credential.

Of course, the Promise's impact at any of these stages could be reduced if it provided too little support, if the administrative burden placed on students was too high, or if the message of encouragement was unclear (Perna et al., 2020). For some students, MATC might not be a fit for their college and career goals.

It is unclear whether the Promise will reduce inequality by raising college attainment among families with lower incomes and in urban areas, where rates of college-going are lower. Lower incomes make it more likely a student will be eligible for the Promise, but less likely they will receive any funding from it. In urban MPS, the rate of attending MATC among college-goers is higher than in the suburbs. Familiarity with MATC as an option might suggest that MPS students would be more responsive to the MATC Promise, or the familiarity might suggest that there is less room for messaging about MATC to have an impact.

Below we test whether the Promise increased rates of filing the FAFSA by March 15,

matriculating to MATC, matriculating to any college, matriculating to a four-year college, or earning a college credential at any college within two years. We test for effects among students from lower income families and students from MPS.

## 4. Empirical approach

This section introduces the data and our model to quantify impacts of the MATC Promise. In the next section, we present visual and numerical evidence of the impact.

### 4.1. Data

We gathered data from a longitudinal data system built by the Wisconsin Department of Public Instruction (DPI), combining information from schools, the state, and the National Student Clearinghouse (NSC). For more information, see [dpi.wi.gov/wisedash/help/glossary](http://dpi.wi.gov/wisedash/help/glossary). These data were combined with FAFSA information from the Wisconsin Higher Educational Aids Board (HEAB) and then shared with researchers in a deidentified format. Because the MATC Promise interacts with public instruction and public college aid, this research informs the mission of DPI and HEAB. This research was approved by the RAND Corporation Human Subjects Protection Committee.

Our sample is all public high school graduates in Wisconsin from the classes of 2010 through 2019. Our data do not identify whether students applied for or ultimately qualified for the MATC Promise. We look for aggregate impacts on college-going in the community. We look for Promise impacts in Milwaukee starting with the class of 2016. The FAFSA records identify whether students filed the FAFSA by March 15, the deadline for the first cohort of the MATC Promise. The NSC records identify enrollment and credential completion at MATC, at a four-year college, or at any other college during each academic year. The degree completion data are limited to two years after matriculation. Many community college students take longer than two years to complete, so we view two-year completion outcomes as a test of whether dropout rates were increased by an influx of marginal students drawn in by the Promise.

These are administrative records that do not rely on student response rates. However, enrollment at for-profit colleges is inconsistently measured in the NSC data, so we expect



that our measure of college enrollment will undercount students who attend for-profit colleges (Dynarski et al., 2015). The FAFSA filing and graduation records are not available for the classes of 2018 and 2019.

We identified students from lower income families using a measure of economic disadvantage in the public school data: students who received free or reduced-price lunch during high school. Eligibility was based on having a family income below 185 percent of the federal poverty guideline. This measure does not exactly match the income eligibility limit for the Promise, but it was observable regardless of Promise application status.

The overall sample size was 8,760 students per graduating class, or 87,600 students in all. The sample with economic disadvantage was 3,557 students per graduating class, and the sample in MPS was 3,220 students per graduating class.

#### *4.2. Interrupted time series analysis (ITSA)*

We used the data to fit a model of college outcomes for students in Milwaukee. We modeled the trend in outcomes before and after the introduction of the Promise. Then we tested for a significant break in the trend at the point when the Promise was introduced. That break is significant if it is larger than we would expect, given the typical year-to-year variation.

The model we used was an interrupted time series analysis (ITSA). We used the software described by Linden (2015) to estimate this model. The estimation is weighted by the number of students in each time period  $t$ . We followed the algorithm in Linden (2015) to select a single-lag autocorrelation structure and calculate Newey-West standard errors. The conclusions are robust to other lag structures. The model allows for linear trends in the outcome that can change slope before and after the introduction of the Promise. We do not have enough years of data to fit a more flexible model of trends. Below we will see that the standard linear model fits the matriculation data well.

In the following single-group ITSA equation,  $Y_t$  represents an outcome (e.g., matriculation rate) for cohort  $t$  (e.g., class of 2016).  $T_t$  counts years since the start of the study.  $P_t$  is an indicator for the cohorts that are affected by the Promise. It equals 0 in 2015 and earlier, and it equals 1 in 2016 and later.  $\epsilon_t$  is an idiosyncratic error term.  $\beta_0$ ,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are

parameters to be estimated.

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 P_t + \beta_3 P_t T_t + \epsilon_t$$

Our primary focus is  $\beta_2$ , the change in outcomes at the point where the Promise was introduced. We also report the baseline outcome before the Promise, which is the endpoint in 2016 of the pre-Promise trend line (starting at  $\beta_0$  with slope  $\beta_1$ ). That baseline is where the model indicates the outcome would be for the class of 2016, if the pre-Promise trend continued. It represents an estimate of the counterfactual situation where the Promise was never introduced.

#### *4.3. Interpretation and validity of ITSA*

To interpret  $\beta_2$  as the impact of the Promise, we must rule out other explanations for a significant break in college outcomes between 2015 and 2016 for students in Milwaukee.

We do not know of any programs or policies specific to MATC and Milwaukee that were introduced at the same time as the MATC Promise. College aid programs change incrementally each year, but there were no major changes in Wisconsin Grant or Pell Grant aid for the 2016-17 school year (Wisconsin Higher Educational Aids Board, 2016). Milwaukee implemented college-readiness requirements for high school graduation starting with the class of 2015, one year before the impacts we are measuring (Farmer-Hinton and Rifelj, 2018). MPS had started offering the ACT for all of its students free of charge on a regular school day in 2009, and then required all students to take the ACT before graduation beginning in 2011 (Falk, 2016). The Degree Project applied to the class of 2015 only, at half of the Milwaukee high schools.

As a check on our results, we compared changes in Milwaukee to changes elsewhere in Wisconsin where the MATC Promise did not apply. In general, we do not view Wisconsin as a good proxy for what would have happened in Milwaukee absent the Promise, because of the uniqueness of Milwaukee discussed in Section 3.5. However, we selected a group of technical college districts with similar trends to Milwaukee, using the procedure described below Linden (2015). We then estimated a multiple-group ITSA, similar to a difference-in-difference model. The result of that model is the change in outcomes in Milwaukee, net of the change in

outcomes that occurred in a matched comparison group.

The multiple-group model interacts the terms in the single-group equation with an indicator for being in the Milwaukee district or not. The following equation adds a subscript  $i$  for technical college districts. The indicator for Milwaukee is denoted  $M_i$  and equals 1 for Milwaukee, 0 for other districts. This model also includes district-year covariates  $\mathbf{X}_{it}$  to directly control for differences between Milwaukee and other areas of Wisconsin. In this equation,  $\beta_0$ ,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the parameters for districts other than Milwaukee.  $\beta_4$ ,  $\beta_5$ ,  $\beta_6$ , and  $\beta_7$  are the incremental differences in those parameters for Milwaukee.  $\beta_6$  is the difference in differences.

$$Y_{it} = \beta_0 + \beta_1 T_t + \beta_2 P_t + \beta_3 P_t T_t + \beta_4 M_i + \beta_5 M_i T_t + \beta_6 M_i P_t + \beta_7 M_i P_t T_t + \mathbf{X}'_{it} \beta_8 + \epsilon_{it}$$

We selected a comparison group using the following procedure. We estimated this equation 15 times, pairing Milwaukee with each other technical college district one by one. We tested for a difference between Milwaukee and the comparison district in the level and slope of matriculation to the local technical college before the Promise ( $\beta_4$  and  $\beta_5$ ). We included covariates measuring the percent of students with economic disadvantage, percent men, percent White students, and percent Black students. There were five districts with  $p$ -values above 0.10 for both the level and slope in the pre-Promise period, meaning we could not reject that the district had equal outcomes to Milwaukee. Two of those districts were in the north central part of Wisconsin, two in the southwest part of Wisconsin, and one was in a distant suburb outside Milwaukee.

We apply this model with caution, since there was a change occurring in the rest of the state that first affected the class of 2016. Wisconsin introduced a statewide mandate that all high school students take the ACT exam. The exam was paid for by the state and offered during class time. The mandate increased ACT-taking from 73 to 100 percent of high school graduates (ACT Research, 2016). In other contexts, researchers found that mandating the ACT increased enrollment at universities and more selective institutions while having no effect or a small negative effect on enrollment at two-year institutions (Klasik, 2013; Hurwitz et al., 2015; Goodman, 2016; Hyman, 2017). If the ACT mandate decreased enrollment at

two-year institutions outside of Milwaukee, then that would tend to overstate the impact of the Promise using our multiple-group model. Below we will see that there was no evidence of a drop in matriculation to the local technical college from 2015 to 2016.

## 5. Results

### 5.1. Graphical results

These figures each graph the rate of matriculation to the local technical college (vertical axis) for each high school graduating class (horizontal axis) among different technical college districts (denoted by each line).

Figure 1 compares Milwaukee to the rest of Wisconsin. The rate of matriculating to MATC in Milwaukee increased from about 10 percent in the class of 2015 to about 15 percent in the class of 2016 (solid line). That broke a trend of flat or declining enrollments. The rate of matriculating to the local technical college in the rest of Wisconsin increased from about 27 percent in the class of 2015 to about 28 percent in the class of 2016 (dotted line). That continued a steady upward trend, which then flattened out for the class of 2017 and later. The rest of Wisconsin was diverging from Milwaukee with increasing rates of matriculation, and that trend was offset in 2016.

Figure 2 presents the same data for Milwaukee, compared to the average in five selected technical college districts with a closer match for trends pre-Promise. The rate of matriculating to the local technical college in the comparison group stayed the same from 2015 to 2016 at about 29 percent.

Figure 3 focuses within Milwaukee, and shows an exhaustive and mutually exclusive breakdown of four student groups. The largest group, about half of students, graduated outside MPS and were not classified as economically disadvantaged. Those students had the lowest rates of matriculation to MATC before the Promise and the smallest apparent effect of the Promise. All three of the other groups, with low family income, attending MPS, or both, had higher rates of matriculation to MATC and a clearly visible increase in 2016. Within MPS, for both income groups, the trend leading into 2016 was flat. Outside MPS among lower income families, the trend in matriculation to MATC was declining leading into 2016 and then reversed its trend after the Promise.

## 5.2. Numerical results

The graphical analysis suggests a clear impact of the Promise on college matriculation. This section quantifies that impact. Each row of Table 3 is a different estimation of one of the models specified in Section 4.2. The table provides the baseline rate, which is our model-based estimate of what the outcome would be for the class of 2016 based on pre-Promise trends. The table reports the estimated effect of the Promise in percentage points, as well as the standard error and statistical significance of that estimate.

The first set of results refers to Milwaukee overall. The baseline rate of FAFSA filing by March 31 was 39.2 percent. There was some indication of a positive effect on the rate of FAFSA filing, but the estimate of a 1.5 percentage point increase was not statistically significant. The baseline rate of matriculation to MATC was 9.9 percent. There was a statistically significant positive effect on the rate of matriculation to MATC, increasing it by 4.9 percentage points. The baseline rate of matriculation to any college was 61.1 percent. There was a statistically significant positive effect on the rate of matriculation to any college, increasing it by 2.3 percentage points. Since the overall increase in college going was smaller than the increase in matriculation to MATC, this means that some of the increase in matriculation to MATC came from a reallocation of students from other colleges to MATC. We tested whether the Promise reduced matriculation to four-year colleges and universities. The baseline rate of matriculation to four-year colleges and universities was 43.4 percent. There was some indication of a negative effect, but the estimate of a 1.7 percentage point decrease was not statistically significant. Finally, the baseline rate of graduating in two years with a credential was low, at 1.9 percent. There was no indication of a meaningful change in that rate.

The standard error of 0.3 percentage points on the main outcome of matriculation to MATC suggests we could detect effects as small as about 0.6 percentage points or about 52 students. This effect size is much smaller than the intended effect of the program, which was to increase matriculation by at least 1,000 students. In a meta-analysis of 75 studies on college persistence and graduation, Nguyen et al. (2019) found that an additional \$1,000 of grant aid increased college persistence by 1.5 to 2 percentage points. Therefore the level of precision in our study was able to detect effects smaller than the typical impact of other

more generous aid programs.

The second set of results includes a selected comparison group to show that the change in matriculation to the local technical college from 2015 to 2016 was significantly larger in Milwaukee than in the other areas of the state that were most similar to Milwaukee prior to 2016. The results for matriculation to MATC are nearly identical to the single-group model, since the change in control group outcomes from 2015 to 2016 was nearly zero (see Figure 2). Differencing out zero effect leaves the result unchanged. The point estimate of 5.2 percentage points is within the confidence interval of our initial estimate of 4.9 percentage points using only the MATC district.

The third set of results refers to students with economic disadvantage in Milwaukee. The baseline rates of FAFSA filing by March 15 (28.3 percent) and matriculation to college (44.2 percent) were lower in this group than for Milwaukee overall, but the positive effects on these outcomes were larger (statistically significant increases of 4.9 percentage points in FAFSA filing and 4.0 percentage points in matriculation to college). The baseline rate of matriculation to MATC was higher (12.2 percent) in this group than for Milwaukee overall, and the positive effect on this outcome was also larger (6.4 percentage points). The effects on matriculation to a four-year college and on two-year credential completion were similar to those in Milwaukee overall.

The fourth set of results refers to graduates from MPS. The baseline rates and estimated effects were similar to those among students with economic disadvantage, with the exception of a larger and statistically significant effect on credential completion. The increase was 0.9 percentage points, or a total of about 29 students, which represents a large increase on the baseline rate of 0.8 percent. That increase is proportionally larger. That result suggests that students drawn into MATC by the Promise raised two-year completion rates among students matriculating from MPS. Taken together, the results from students with economic disadvantage and from MPS indicate that the Promise did reduce inequality in educational outcomes.

## 6. Discussion and conclusion

### 6.1. *What we learned about MATC Promise and Milwaukee*

The MATC Promise set a goal to increase educational attainment and equity in one of the nation’s most segregated cities. We found evidence that it encouraged students to apply for and access federal aid, resulting in higher rates of college-going and higher rates of degree attainment for MPS students.

The impacts reached beyond students who qualified for Promise aid. We can use the sample sizes and effect estimates in Table 3 to calculate the number of new college students drawn in by the Promise, and then compare that to the number of students who met all the requirements and became Promise scholars. The 4.9 percentage point effect on matriculation to MATC, times the 8,760 students per year in Milwaukee, suggests that the Promise drew 430 students to MATC per year. The 2.3 percentage point effect on matriculation to any college suggests that 200 new college students enrolled each year because of the Promise. MATC reports that about 170 students became Promise scholars in each cohort (Milwaukee Area Technical College, 2021), and we estimated that 85 percent of those did not receive financial support. We conclude that the program had positive effects among many students who did not qualify for the program or receive any aid.

### 6.2. *Limitations of this study*

This study was not a complete account of the impacts of MATC Promise and why they occurred. Our study was based on state records and public information about the program. Other studies of promise programs observed college intentions during high school (Odle, 2022), debt accumulation during college (Odle et al., 2021), and implementation of the program by educators (Rifelj and Kuttner, 2020). A full evaluation of these programs should also measure their impacts after college, on how students fare in the job market. These are important parts of the overall cost-benefit for students and the community. We view our study as a first step to establishing program effects. Future research should use survey and interview data to reveal the mechanisms that drove these effects.

Incorporating more data would allow for a more flexible analytical approach. We used six cohorts of students to establish a linear time trend of outcomes before the Promise, and we

used four cohorts of students to establish a linear time trend of outcomes after the Promise. Additional data leading up to the Promise might have refined our linear estimate or allowed us to use a more flexible shape to fit the data. This was not a major limitation, as publicly available data from WISEdash (2023) shows that the trend in matriculation from Milwaukee students to community colleges was nearly flat and linear in an extended ten-year span before the Promise.

We focused on the sharp break at the point of the Promise launch, but it is possible the effects of the MATC Promise have evolved since then. The program has removed the requirements on student service, high school attendance, and ACT scores; the application deadlines for the Promise and FAFSA applications were shifted from December and March to both being in the summer; the EFC maximum was been increased, but students still need to be eligible for a Pell Grant; the program now supports up to 75 credits that do not need to be taken consecutively, rather than four consecutive semesters of college (see [www.matc.edu/promise/high-school.html](http://www.matc.edu/promise/high-school.html)). These changes included more students, but the message of free college remains the same. The force of the messaging might be reduced as it becomes clear the program adds requirements without much additional funding. Our results suggest that getting students to access state and federal aid, and to think about college, outweighed potential drawbacks. But this result should be re-examined in later years, to the extent possible without the natural experiment of the sudden launch of the program.

### *6.3. Implications for college promise programs*

Building evidence on the MATC Promise is important in its own right, as the program continues to be offered to over 8,000 high school graduates in the MATC district each year. Our results are also important for other similar programs in over 100 other places nationwide. Our results are consistent with studies showing that community college promises have reduced inequality by having stronger effects on students with lower financial resources (Carruthers and Fox, 2016) and on minority students (Bell and Gándara, 2021). Our results are consistent with recent findings outside of community colleges. A message delivered to university students guaranteeing free college raised matriculation rates, while relying primarily on existing aid for funding (Dynarski et al., 2021).



We still do not know the mix of design features that will maximize the impact of a college promise. The answer probably depends on the specific obstacles and resources present in each community (Perna et al., 2020). Testing different configurations is difficult, since the programs need to be implemented at scale. We are forced to try to understand program effectiveness from studying a variety of programs available to different communities and offering different design features.

Across all of its implementations, last-dollar community college promise has low costs and potentially high returns. It shares the political language of other place-based programs in promoting economic development of a community (Monaghan and Attewell, 2023), while the primary source of investment is likely to be dollars of financial aid from state and federal sources.

Last-dollar promise programs would likely not work as well if students already knew about and accessed the aid they needed. The positive impact of the MATC Promise provides further evidence that the complexity of college pricing is a barrier for students, particularly students from lower income families who rely on multiple sources of aid. Our results indicate that promising free tuition sends a powerful message of possibility to students.

## References

- ACT Research. 2016. The condition of college & career readiness 2016: Wisconsin key findings. Report, ACT, Inc.
- Acton, Riley. 2021. Effects of reduced community college tuition on college choices and degree completion. *Education Finance & Policy* 16, no. 3: 388–417.
- Anderson, Charity. 2019. Local-level, place-based scholarships: a review of the literature. *Educational Review* 73: 638–661.
- Anderson, Drew M. 2020a. Need-based financial aid in Wisconsin: State policy and student pathways. RR-3057-1, RAND Corporation.
- . 2020b. When financial aid is scarce: The challenge of allocating college aid where it is needed most. *Journal of Public Economics* 190: 104253.
- Anderson, Drew M., Katharine M. Broton, Sara Goldrick-Rab, and Robert Kelchen. 2020. Experimental evidence on the impacts of need-based financial aid: Longitudinal assessment of the Wisconsin Scholars Grant. *Journal of Policy Analysis and Management* 39, no. 3: 720–739.
- Anderson, Drew M. and Sara Goldrick-Rab. 2018. Aid after enrollment: Impacts of a statewide grant program at public two-year colleges. *Economics of Education Review* 67: 148–157.
- Andrews, Rodney J. 2014. The promise of “promise” programs. In *Reinventing financial aid: Charting a new course to college affordability*, eds. Andrew P. Kelly and Sara Goldrick-Rab. Harvard University Press.
- Bahr, Steven, Dinah Sparks, and Kathleen Mulvaney Hoyer. 2018. Why didn’t students complete a Free Application for Federal Student Aid? Stats in Brief NCES 2018-061, U.S. Department of Education.
- Bell, Elizabeth and Denisa Gándara. 2021. Can free community college close racial disparities in postsecondary attainment? How Tulsa Achieves affects racially minoritized student outcomes. *American Educational Research Journal* 58, no. 6: 1,142–1,177.
- Bettinger, Eric P., Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu. 2012. The role of application assistance and information in college decisions: Results from the H&R Block FAFSA experiment. *Quarterly Journal of Economics* 127, no. 3: 1,205–1,242.
- Billings, Meredith. 2018. Understanding the design of college promise programs, and where to go from here. Brown Center Chalkboard, Brookings Institution.
- Bird, Kelli A., Benjamin L. Castleman, Jeffrey T. Denning, Joshua Goodman, Cait Lamberton, and Kelly Ochs Rosinger. 2021. Nudging at scale: Experimental evidence from FAFSA completion campaigns. *Journal of Economic Behavior & Organization* 183, no. C: 105–128.

- Bulman, George and Jesse Cunha. 2021. Factors shaping college investment and enrollment gaps. In *The routledge handbook of the economics of education*, ed. Brian P. McCall. Routledge.
- Burland, Elizabeth, Susan Dynarski, Katherine Michelmore, Stephanie Owen, and Shwetha Raghuraman. 2022. The power of certainty: Experimental evidence on the effective design of free tuition programs. Working Paper 29864, National Bureau of Economic Research.
- Callahan, Kate, Daniel Kent, Kasey Meehan, and Kathleen M. Shaw. 2019. Affordability, access, success: A framework for examining statewide college promise programs. Report, Research for Action.
- Carrell, Scott and Bruce Sacerdote. 2017. Why do college-going interventions work? *American Economic Journal: Applied Economics* 9, no. 3: 124–151.
- Carruthers, Celeste K. and William F. Fox. 2016. Aid for all: College coaching, financial aid, and post-secondary persistence in Tennessee. *Economics of Education Review* 51: 97–112.
- Cohodes, Sarah R. and Joshua S. Goodman. 2014. Merit aid, college quality, and college completion: Massachusetts’ Adams Scholarship as an in-kind subsidy. *American Economic Journal: Applied Economics* 6, no. 4: 251–285.
- Davidson, Christopher T., Drew T. Ashby-King, and Luke J. Sciulli. 2020. The higher education funding revolution: An exploration of statewide community college “free tuition” programs. *Community College Journal of Research and Practice* 44, no. 2: 117–132.
- Denning, Jeffrey T. 2017. College on the cheap: Consequences of community college tuition reductions. *American Economic Journal: Economic Policy* 9, no. 2: 155–188.
- Dikanovic, Allison. 2016. Students risk missing out on promise of MATC tuition program. *Milwaukee Journal Sentinel* March 11, 2016.
- Dynarski, Susan, C. J. Libassi, Katherine Michelmore, and Stephanie Owen. 2021. Closing the gap: The effect of reducing complexity and uncertainty in college pricing on the choices of low-income students. *American Economic Review* 111, no. 6: 1,721–1,756.
- Dynarski, Susan, Aizat Nurshatayeva, Lindsay C. Page, and Judith Scott-Clayton. 2022a. Addressing non-financial barriers to college access and success: Evidence and policy implications. Working Paper 30054, National Bureau of Economic Research.
- Dynarski, Susan, Lindsay C. Page, and Judith Scott-Clayton. 2022b. College costs, financial aid, and student decisions. Working Paper 30275, National Bureau of Economic Research.
- Dynarski, Susan M., Steven W. Hemelt, and Joshua M. Hyman. 2015. The missing manual: Using National Student Clearinghouse data to track postsecondary outcomes. *Educational Evaluation and Policy Analysis* 37.
- Dynarski, Susan M. and Judith E. Scott-Clayton. 2006. The cost of complexity in federal student aid: Lessons from optimal tax theory and behavioral economics. *National Tax Journal* 59, no. 2: 319–356.

- Falk, Terry. 2016. Why did state's ACT test scores plummet? *Urban Milwaukee* August 31, 2016.
- Farmer-Hinton, Raquel and B. Tait Kellogg. 2022. Incentives and existing stratification: Social capital, college planning, and a promise scholarship program. *Teachers College Record* 124, no. 2.
- Farmer-Hinton, Raquel and Kelly Krupa Rifelj. 2018. Clearing clogs in the pipeline. In *Career and college readiness and success for all students*, eds. Becky Smerdon, Kellie Kim, and Corinne Alfeld. Information Age Publishing.
- Federal Student Aid. 2016. 2016-2017 federal Pell Grant payment and disbursement schedules. Dear Colleague letter GEN-16-01, U.S. Department of Education.
- Feeney, Mary and John Heroff. 2013. Barriers to need-based financial aid: Predictors of timely FAFSA completion among low-income students. *Journal of Student Financial Aid* 43, no. 2.
- Gándara, Denisa and Amy Li. 2020. Promise for whom? "Free college" programs and enrollments by race and gender classifications at public, 2-year colleges. *Educational Evaluation and Policy Analysis* 42, no. 4: 603–627.
- Goldrick-Rab, Sara. 2016. *Paying the price: College costs, financial aid, and the betrayal of the American dream*. University of Chicago Press.
- Goodman, Joshua. 2008. Who merits financial aid? Massachusetts' Adams Scholarship. *Journal of Public Economics* 92: 2,121–2,131.
- Goodman, Joshua, Michael Hurwitz, and Jonathan Smith. 2017. Access to 4-year public colleges and degree completion. *Journal of Labor Economics* 35, no. 3: 829–867.
- Goodman, Sarena. 2016. Learning from the test: Raising selective college enrollment by providing information. *Review of Economics and Statistics* 98, no. 4: 671–684.
- Grodsky, Eric and Melanie T. Jones. 2007. Real and imagined barriers to college entry: Perceptions of cost. *Social Science Research* 36, no. 2: 745–766.
- Gurantz, Oded. 2019. What does free community college buy? Early impacts from the Oregon Promise. *Journal of Policy Analysis and Management* 39, no. 1: 11–35.
- Harnisch, Thomas L. and Kati Lebioda. 2016. The promises and pitfalls of state free community college plans. Report, American Association of State Colleges and Universities.
- Harris, Douglas N. 2017. The intended and unintended effects of free college and performance aid programs: Evidence from a randomized control trial. Presentation, Improving Research-Based Knowledge of College Promise Programs Conference.

- Harris, Douglas N., Raquel Farmer-Hinton, Debbie H. Kim, John B. Diamond, Tangela Blakely Reavis, Kelly Krupa Rifelj, Hilary J. Lustick, and Bradley Carl. 2020. The promise of free college (and its potential pitfalls): Evidence from a randomized controlled trial of a performance-based aid program. In *Improving research-based knowledge of college promise programs*, eds. Laura W. Perna and Edward J. Smith, chap. 6. American Educational Research Association, 119–150.
- Herzog, Karen. 2015. MATC announces free tuition for low-income students. *Milwaukee Journal Sentinel* September 9, 2015.
- Horn, Laura J., Xianglei Chen, and Chris Chapman. 2003. What students and their parents know about the cost of college tuition and what they are doing to find out. Statistical Analysis Report NCES 2003-030, National Center for Education Statistics.
- Hurwitz, Michael, Jonathan Smith, Sunny Niu, and Jessica Howell. 2015. The Maine question: How is 4-year college enrollment affected by mandatory college entrance exams? *Educational Evaluation and Policy Analysis* 37, no. 1: 138–159.
- Hyman, Joshua. 2017. ACT for all: The effect of mandatory college entrance exams on postsecondary attainment and choice. *Education Finance and Policy* 12, no. 3: 281–311.
- Kelchen, Robert, Sara Goldrick-Rab, and Braden Hosch. 2017. The costs of college attendance: Examining variation and consistency in institutional living cost allowances. *The Journal of Higher Education* 88, no. 6: 947–971.
- Klasik, Daniel. 2013. The ACT of enrollment: The college enrollment effects of state-required college entrance exam testing. *Educational Researcher* 42, no. 3: 151–160.
- Kofoed, Michael S. 2017. To apply or not to apply: FAFSA completion and financial aid gaps. *Research in Higher Education* 58, no. 1: 1–39.
- Kramer, Jenna W. 2020. Experimental evidence on the effects (or lack thereof) of informational framing during the college transition. *AERA Open* 6, no. 1: 1–20.
- Leigh, Elaine W. and Manuel S. Gonzalez-Canche. 2021. The college promise in communities: Do place-based scholarships affect residential mobility patterns? *Research in Higher Education* 62, no. 1.
- Li, Amy Y. and Denisa Gándara. 2020. The promise of “free” tuition and program design features: Impacts on first-time college enrollment. In *Improving research-based knowledge of college promise programs*, eds. Laura W. Perna and Edward J. Smith, chap. 10. American Educational Research Association, 219–240.
- Linden, Ariel. 2015. Conducting interrupted time-series analysis for single- and multiple-group comparisons. *The Stata Journal* 15, no. 2: 480–500.
- Ma, Jennifer and Matea Pender. 2021. Trends in college pricing and student aid 2021. Report, The College Board.

- McKinney, Lyle and Heather Novak. 2014. FAFSA filing among first-year college students: Who files on time, who doesn't and why does it matter? *Research in Higher Education* 56: 1–28.
- Miller-Adams, Michelle. 2015. Promise nation: Transforming communities through place-based scholarships. Report, Upjohn Institute for Employment Research.
- . 2021. *The path to free college*. Harvard Education Press.
- Millett, Catherine M., Stephanie R. Saunders, Martha J. Kanter, and Robyn Hiestand. 2020. A history and overview of the college promise movement. In *Improving research-based knowledge of college promise programs*, eds. Laura W. Perna and Edward J. Smith, chap. 2. American Educational Research Association, 17–30.
- Milwaukee Area Technical College. 2015. The MATC Promise. Presentation to district boards, Wisconsin Technical College System.
- . 2016. Mayor Tom Barrett speaks on FAFSA. *MATC Web Galleries* March 15, 2016.
- . 2020. MATC Promise results. Website: [matc.edu/foundation/matc-foundation-promise/index.html](http://matc.edu/foundation/matc-foundation-promise/index.html), MATC Foundation.
- . 2021. MATC Promise impact report: Results through December 2021. Report, MATC Foundation.
- Mishory, Jen, Anthony Walsh, and Peter Granville. 2020. Exploring ways to enhance FAFSA efficiency: FAFSA and the free college movement. Report, The Century Foundation and NASFAA, the National Association of Student Financial Aid Administrators.
- Monaghan, David B. 2023. How well do students understand “free community college?” promise programs as informational interventions. *AERA Open* 9, no. 1: 1–13.
- Monaghan, David B. and Paul A. Attewell. 2023. College promise programs as symbolic politics. *Sociology of Education* 96, no. 4.
- Monaghan, David B. and Vanessa M. Coca. 2023. Do community college “promise” programs with low-bar merit criteria improve high school performance. *Community College Review* 51, no. 4: 509–537.
- Mountjoy, Jack. 2022. Community colleges and upward mobility. *American Economic Review* 112, no. 8: 2,580–2,630.
- National Association of State Student Grant and Aid Programs. 2021. 52nd annual survey report on state-sponsored student financial aid. Survey report 2020-2021 Academic Year, NASSGAP.
- National Student Clearinghouse. 2018. High school benchmarks. National college progression rates, National Student Clearinghouse Research Center.

- . 2022. Completing college. National and state reports, National Student Clearinghouse Research Center.
- Nguyen, Hieu. 2020. Free college? Assessing enrollment responses to the Tennessee Promise program. *Labour Economics* 66: 101882.
- Nguyen, Tuan D., Jenna W. Kramer, and Brent J. Evans. 2019. The effects of grant aid on student persistence and degree completion: A systematic review and meta-analysis of the causal evidence. *Review of Educational Research* 89, no. 6: 831–874.
- Odle, Taylor K. 2022. The power of “free” college: Reducing racial and socioeconomic inequalities in college expectations. EdWorkingPaper: 22-565, The Annenberg Institute at Brown University.
- Odle, Taylor K., Jason C. Lee, and Steven P. Gentile. 2021. Do promise programs reduce student loans? Evidence from Tennessee Promise. *Journal of Higher Education* 92, no. 6: 847–876.
- Office of Postsecondary Education. 2017. 2016–17 federal Pell Grant program. End-of-year report, U.S. Department of Education.
- Page, Lindsay C. and Judith Scott-Clayton. 2016. Improving college access in the United States: Barriers and policy responses. *Economics of Education Review* 51: 4–22.
- Perna, Laura W. and Elaine W. Leigh. 2018. Understanding the promise: A typology of state and local college promise programs. *Educational Researcher* 47, no. 3: 155–180.
- . 2020. Database of college promise programs. Alliance for Higher Education and Democracy, University of Pennsylvania.
- Perna, Laura W., Jeremy Wright-Kim, and Elaine W. Leigh. 2020. Is a college promise program an effective use of resources? understanding the implications of program design and resource investments for equity and efficiency. *AERA Open* 6, no. 4: 1–15.
- Pluhta, Elizabeth A. and G. R. Penny. 2013. The effect of a community college promise scholarship on access and success. *Community College Journal of Research and Practice* 37, no. 10: 723–734.
- Potter, Halley. 2022. School segregation in U.S. metro areas. Report, The Century Foundation.
- Pretlow, Joshua, Margaux Cameron, and Deonte Jackson. 2022. Community college entrance and bachelor’s degree attainment: A replication and update. *Community College Review* 50, no. 3: 227–252.
- Ratledge, Alyssa, Colleen Sommo, Dan Cullinan, Rebekah O’Donoghue, Marco Lepe, and Jasmina Camo-Biogradlija. 2021. Motor City momentum: Three years of the Detroit Promise Path program for community college students. Report, MDRC.

- Reavis, Tangela Blakely. 2022. Is the early promise of money enough? examining high school students' college knowledge and choice in a promise scholarship program. *Journal of Student Financial Aid* 51, no. 2: Article 4.
- Rifelj, Kelly Krupa and Paul J. Kuttner. 2020. Evidence of failure: How high school counselors and administrators make sense of promise scholarship merit requirements. *Teachers College Record* 122.
- Rosinger, Kelly, Katharine Meyer, and Jialing Wang. 2021. Leveraging insights from behavioral science and administrative burden in free college program design: A typology. *Journal of Behavioral Public Administration* 4, no. 1: 1–26.
- Ruiz, Roman, Elaine W. Leigh, Ashley Napier, and Manual S. González Canché. 2020. Community college promise programs and local impact: Aggregate effects of college attainment in three promise communities. In *Improving research-based knowledge of college promise programs*, eds. Laura W. Perna and Edward J. Smith, chap. 11. American Educational Research Association, 241–266.
- Shapiro, Doug, Afet Dundar, Phoebe Khasiala Wakhungu, Xin Yuan, Angel Nathan, and Youngsik Wang. 2016. Time to degree: A national view of the time enrolled and elapsed for associate and bachelor's degree earners. Signature report, National Student Clearinghouse Research Center.
- Sohn, Hosung, Ross Rubinstein, Judson Murchie, and Robert Bifulco. 2017. Assessing the effects of place-based scholarships on urban revitalization: The case of Say Yes to Education. *Educational Evaluation and Policy Analysis* 39, no. 2: 148–157.
- Wisconsin Higher Educational Aids Board. 2016. 2016-17 Wisconsin Grant-WTCS program formula. Board Report 16-12, State of Wisconsin.
- Wisconsin Legislative Fiscal Bureau. 2017. Wisconsin Technical College System. Informational Paper 31, Christa Pugh, author.
- WISEdash. 2023. Postsecondary enrollment. Public portal, Wisconsin Department of Public Instruction.
- WTCS. 2020. 2019-2020 Fact Book. Student data, Wisconsin Technical College System.



## Tables and figures

Table 1: High school seniors in spring 2015 in MATC area, Milwaukee, Wisconsin, and the United States

	% of MPS	% of Mke.	% of Wisc.	% of US
<i>Urban density</i>				
Urban	100	61	32	30
Suburban	0	39	28	43
Rural or small town	0	0	40	27
<i>Race/ethnicity</i>				
Asian	6	5	4	5
Black	55	34	10	16
Hispanic or Latino	26	20	12	26
Native	1	1	1	1
White	13	41	73	53
<i>Family income</i>				
Economically disadvantaged	59	46	41	54
<i>College outcomes</i>				
Matriculated at any college	45	61	70	69
Matriculated at community college	17	17	35	25

Sources: Authors' calculations using data from the Stanford Education Data Archive (SEDA), National Student Clearinghouse (2018), Wisconsin Department of Public Instruction (DPI), and Wisconsin Higher Educational Aids Board (HEAB).

Notes: Economic disadvantage is defined as receipt of free or discounted lunch in high school.

Table 2: MATC Promise eligibility and benefits for initial class of 2016

---

<i>Requirements</i>	
Geographic	Live or attend school in MATC area
Promise application	Apply to Promise and MATC by December 1 of senior year
FAFSA	File by March 15 of senior year
Income eligibility	Eligible for Pell Grant, EFC < 3,000
High school grades	Senior year grade point average of 2.0 or higher
High school attendance	Senior year attendance of 90% or higher
High school graduation	On-time graduation
ACT	Composite score 16 or higher
Enrollment	Enroll with 12 or more credits
College grades	Maintain 2.0 GPA at MATC
College service	Participate in 8 hours of service learning each semester
<i>Benefits</i>	
Tuition and fees paid	After application of grants and scholarships
Support	Academic and career counseling workshops (participation required)

---

Table 3: Interrupted time series regression estimates

	Baseline	Effect of Promise	(Standard Error)
<i>All of MATC district</i>			
<i>(Avg. N = 8,760 students per year)</i>			
Filed FAFSA by March 15†	39.2	1.5	(1.2)
Matriculated at MATC	9.9	4.9	***(0.3)
Matriculated at any college	61.1	2.3	***(0.3)
Matriculated at a four-year college	43.4	-1.7	(0.4)
Graduated in 2 years from any college†	1.9	0.1	(0.2)
<i>Compared to selected WTCS districts</i>			
<i>(student population-weighted)</i>			
Matriculated at local technical college	9.9	5.2	***(1.6)
<i>Economic disadvantage, MATC district</i>			
<i>(Avg. N = 3,557 students per year)</i>			
Filed FAFSA by March 15†	28.3	4.9	**(1.6)
Matriculated at MATC	12.2	6.4	***(0.3)
Matriculated at any college	44.2	4.0	***(0.6)
Matriculated at a four-year college	27.0	-1.0	(0.5)
Graduated in 2 years from any college†	1.0	0.4	(0.3)
<i>MPS</i>			
<i>(Avg. N = 3,220 students per year)</i>			
Filed FAFSA by March 15†	30.7	5.1	*(2.0)
Matriculated at MATC	12.1	6.9	***(0.3)
Matriculated at any college	45.2	3.6	***(0.6)
Matriculated at a four-year college	28.9	-1.9	(1.1)
Graduated in 2 years from any college†	0.8	0.9	***(0.1)

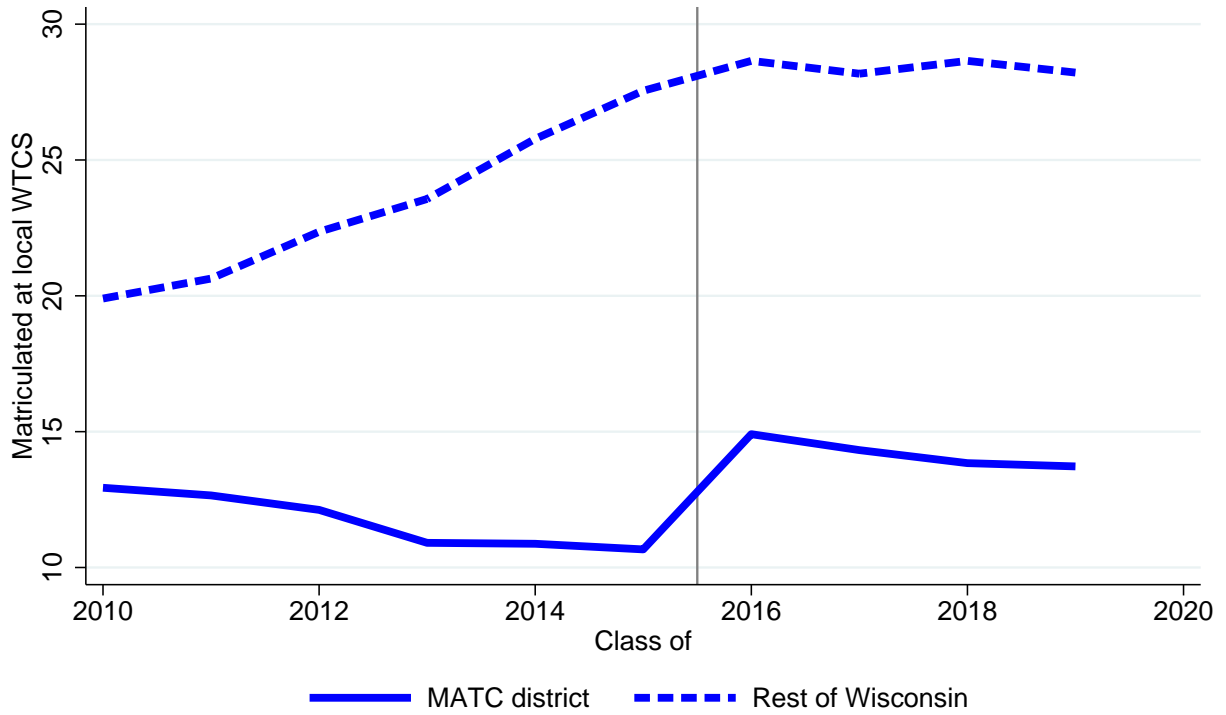
† Limited to class of 2017 and earlier

\*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$

Source: Authors' calculations using data from the Wisconsin Department of Public Instruction (DPI), National Student Clearinghouse (NSC), and Wisconsin Higher Educational Aids Board (HEAB).

Notes: Estimated using interrupted time series command from Linden (2015) with Newey-West standard errors and one autoregressive lag. "Baseline" is the counterfactual matriculation in 2016, based on the predicted value of the pre-Promise linear trend in the treated group. "Effect of Promise" is the break from the pre-Promise trend line to the post-Promise trend line at 2016. For the row comparing to selected WTCS districts, the effect differences out the effect in the comparison group.

Figure 1: Matriculation to local technical college, MATC district and rest of state



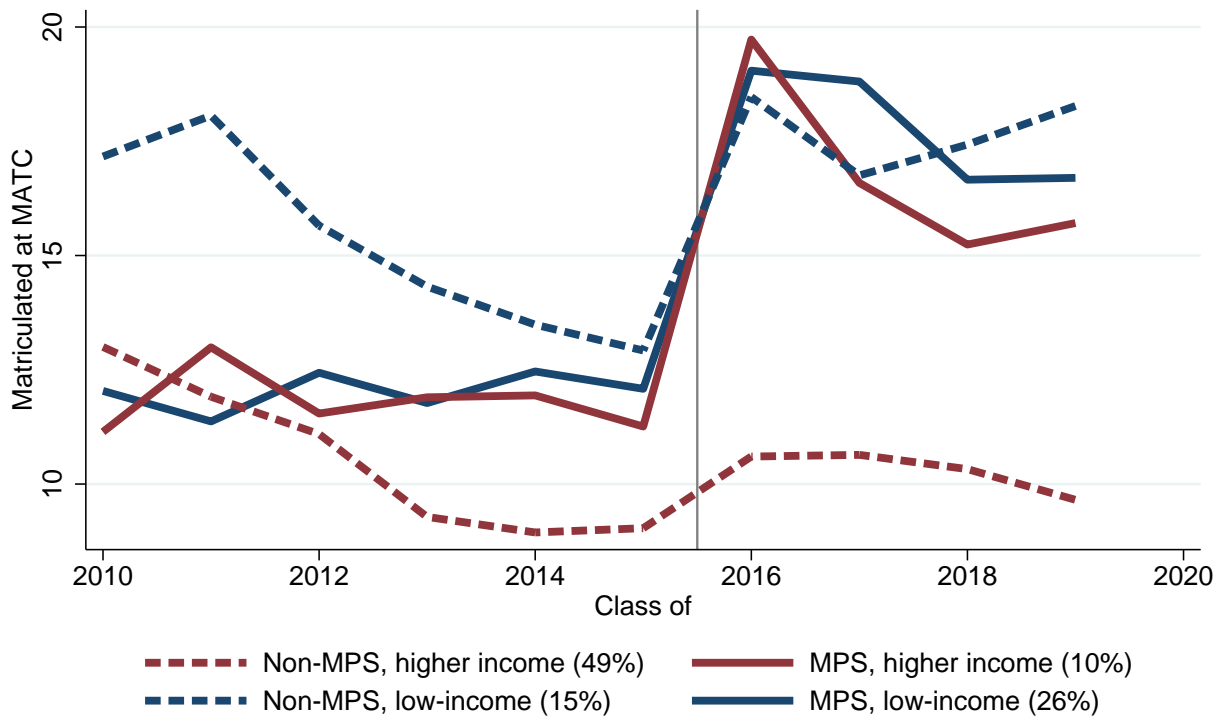
Source: Authors' calculations using data from Wisconsin Department of Public Instruction (DPI) and National Student Clearinghouse (NSC).

Figure 2: Matriculation to local technical college, MATC district and matched comparison group of 5 technical college districts



Source: Authors' calculations using data from Wisconsin Department of Public Instruction (DPI) and National Student Clearinghouse (NSC).

Figure 3: Matriculation to MATC, subgroups of students in the MATC district



Source: Authors' calculations using data from Wisconsin Department of Public Instruction (DPI) and National Student Clearinghouse (NSC).