

Federal Reserve Bank of Philadelphia



How Does Last-Dollar Financial Aid Affect First-Year Student Outcomes? Evidence from the Bridging the Gap Study

MAY 2018

^{*} Community Development and Regional Outreach, Federal Reserve Bank of Philadelphia. The authors would like to thank the Rutgers–Camden students who were interviewed for this study for sharing their time and expertise; Thomas Dahan, Craig Westman, and Jason Schweitzer at Rutgers–Camden for their assistance with securing and interpreting the data analyzed in this study; Lei Ding and Lauren Lambie-Hanson for feedback on the analysis; and Sara Goldrick-Rab, Dubravka Ritter, Sandy Baum, and Thomas Dahan for comments on an early draft. The views expressed here are those of the authors and do not necessarily represent the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

Abstract

Boosting the enrollment, academic performance, and graduation rates of college students from low- and middle-income families are central goals of higher education policy. As the price of a four-year degree rises and the purchasing power of longstanding aid programs declines, governmental and institutional actors have developed an array of strategies for eliminating financial barriers to college. Prominent among these are efforts to dramatically reduce or eliminate tuition costs, often through last-dollar programs that supplement existing sources of need-based aid. To enhance our understanding of the potential and pitfalls of this approach, this paper presents an in-depth, mixed-methods case study of a need-based tuition discounting program at a public four-year institution in New Jersey. Focusing on the first full academic year of the program's implementation, this preliminary report complements analysis of enrollment and academic performance data with insights from student interviews. We find positive impacts on enrollment, although it is unclear whether improvements in academic performance are attributable to the program. Interviews with participants suggest the program improved affordability and reduced financial stress but illuminate challenges with the financial aid process and maintaining eligibility.

Key Findings

- Bridging the Gap, a program that reduces or eliminates tuition and campus fee costs for income-eligible students, substantially boosted the likelihood of enrollment at Rutgers University–Camden for lower-income New Jersey residents admitted to the school.
- Students reported diminished financial stress, reduced reliance on student loan debt, and the ability to reduce work hours during the school year as key benefits of the program. However, many still struggled to balance work and class schedules and to stay on top of variable educational and living expenses.
- Relative to comparable students from prior cohorts, income-eligible students, particularly middle-income students, were more likely to meet the program's academic performance standards and enroll for a second year of study. However, these improvements do not appear to be directly attributable to the program for lower-income students.
- The bureaucratic nature of the financial aid system, including challenges with program implementation, was frustrating and, at times, discouraging for participants. These challenges may have muted the program's effect on persistence and credit completion for eligible lower-income students.

Program Background

In late 2015, officials at the Camden campus of Rutgers, the State University of New Jersey (Rutgers–Camden) announced the Bridging the Gap program, which would provide incomeeligible, first-year undergraduate students from New Jersey with a full or partial discount on net tuition and campus fee costs after federal, state, and institutional need-based grants are applied. The smallest of the three Rutgers campuses, Rutgers–Camden is a self-described "access" university that has long emphasized providing postsecondary opportunities to nontraditional students and students from disadvantaged backgrounds, with a focus on serving residents from the southern portion of the state (King and Divringi, 2017). The Bridging the Gap program was first made available to incoming students starting in the fall of 2016. This cohort of students is the focus of a multiyear program evaluation, the preliminary results of which are presented in this report.

For the first cohort enrolling in fall 2016, Bridging the Gap applied to students who had never attended college and provided different levels of aid for students in two income groups.1 For students whose family adjusted gross income (AGI) was no more than \$60,000 (the lower-income group), Bridging the Gap fully discounted net tuition and general campus fee costs. For those from families with an AGI of \$60,001-100,000 (the middleincome group), half of remaining tuition and general campus fee costs were discounted. Although entrance into the program is based entirely on meeting income and residency requirements and enrolling as a full-time, first-year student, to remain eligible for the program in subsequent school years, students must complete 30 credit hours each year and remain in good academic standing, generally defined as maintaining a cumulative grade point average (GPA) of at least 2.0. These requirements are comparable with, although somewhat higher than, academic requirements associated with most need-based grant aid, such as the federal Pell Grant.² A substantial portion of income-eligible students in the first cohort had their tuition and general campus fee entirely covered by federal, state, and other institutional need-based grants; they received no additional aid from Bridging the Gap. These students can complete fewer than 30 credit hours in an academic year and fully retain their financial aid.

In the years examined in this report, Rutgers–Camden also implemented substantial changes to academic advising and course enrollment procedures for incoming first-year students.³ Each summer, incoming students attend an on-campus group advising session during which they register for their first semester courses. Prior to 2015, registering for classes was largely self-directed, which proved challenging for some to navigate. Beginning with the incoming 2015 class, advisers began prereg-

¹ Bridging the Gap is now available to students transferring from Camden County College, and participants today are divided into three income-based groups. See https://admissions.camden.rutgers.edu/paying-for-college/ bridging-gap for details.

² The federal Pell Grant program requires recipients to be enrolled fulltime, defined as a minimum of 12 credit hours per semester or 24 credit hours across fall and spring terms.

³ Based on conversations with Rutgers–Camden staff.

istering students for roughly 9 to 12 credit hours to help students begin their college careers with the appropriate course sequence for their planned majors. In 2016, the same year Bridging the Gap was initiated, advisers began preregistering students for 15 credit hours in order to establish this as the baseline for fulltime students. For subsequent semesters, advisers continued to emphasize the importance of maintaining a 15 credit hour load, which would put most students on track to graduate in four years.⁴ As a result, irrespective of financial support from Bridging the Gap, all incoming students in the 2016 school year were strongly encouraged to enroll in 15 credits per semester, putting them on track to complete 30 credits in their first academic year.

In the fall of 2016, King and Divringi (2017) interviewed 20 firstyear students in the initial Bridging the Gap cohort and eight Rutgers-Camden administrators who had been instrumental in implementing the program. By reducing the net price of college, administrators anticipated that the program would improve students' perception of the affordability of a four-year degree (both in absolute terms and relative to starting at a two-year institution), reduce students' and families' reliance on student loans, and reduce the amount of time students would need to dedicate to paid employment during the school year. Credit completion and GPA requirements were intended to improve on-time graduation rates. Interviews with participants suggested that lower- and middle-income students were very receptive to Bridging the Gap's straightforward promise of college affordability. However, once on campus, many students struggled to navigate the financial aid system and manage expenses beyond the program's purview. Perhaps most concerning, few participants seemed to be aware of the academic requirements associated with maintaining program eligibility.

Purpose of the Study

This report builds on the findings of King and Divringi (2017), adding to a growing but still scant body of research on how need-based aid affects long-term academic performance (Clotfelter, Hemelt, and Ladd, 2017; Castleman and Long, 2016; Goldrick-Rab, Kelchen, Harris, and Benson, 2016). Our broader evaluation effort also seeks to inform two related conversations in college access that have garnered increased interest in recent years. The first is around the growing popularity of college promise programs, which encompass a wide range of aid delivery models but are generally defined by their broad eligibility based on where students reside (Miller-Adams, 2015; Perna, 2016). The second pertains to ongoing efforts to eliminate tuition costs for in-state residents at public institutions. Many of these programs operate on a last-dollar model, meaning that additional aid is introduced after applying existing sources of need-based aid, in effect making these the last dollars to be

⁴ Students retained the ability to change courses or to reduce their course load if desired. The minimum course load for full-time enrollment remained 12 credit hours. applied to students' tuition costs. Because of the fiscal appeal of these programs, this strategy has gained popularity among state governments in recent years (Perna, Leigh, and Carroll, 2018).

Bridging the Gap presents an interesting case study for those engaged in these broader policy discussions. Although it shares the placed-based features of a college promise program, the implementation of Bridging the Gap was driven by a single institution, rather than a state government or private philanthropic organization. As a result, the findings from this evaluation are directly relevant for other colleges and universities contemplating similar efforts. Furthermore, while the program has similarities to many last-dollar, free tuition models, it incorporates some degree of income targeting while maintaining a clear promise of enhanced affordability. This is a key feature of the program, since students from lower- and middle-income families are disproportionately likely to rule out colleges based solely on sticker price (College Board and Art & Science Group, 2012). Last, by combining the features of need-based and performance-based aid, this evaluation adds to our understanding of the benefits and risks of making aid receipt contingent on academic progress (Schudde and Scott-Clayton, 2016; Goldrick-Rab, 2016).

The analysis presented in this report was motivated by three primary research questions:

- Did the Bridging the Gap program affect admitted students' likelihood of enrolling at Rutgers-Camden?
- 2. How has the program affected the affordability of college attendance for participating students?
- Did eligible students see improvements in academic performance and persistence at Rutgers–Camden?⁵

These questions get at the heart of the administration's stated objectives for developing the program, as identified in King and Divringi (2017). Using a mixed-methods approach, we conduct a holistic assessment of the Bridging the Gap program after its first year and lay the foundation for planned evaluations following years three and five.

Methods

The quantitative findings summarized in this report are based on an analysis of an anonymized data set representing students who applied to Rutgers–Camden for admission in 2014, 2015, and 2016. The data set contains information on student characteristics from the Free Application for Federal Student Aid (FAFSA) form for those who filed, indicators for whether the student was admitted, and whether the student enrolled. For enrolled students, information on financial aid as of the end of

⁵ While degree completion is an important metric by which to assess the effects of the Bridging the Gap program, this and future interim evaluations will focus on academic performance and reenrollment at Rutgers–Camden, saving degree completion for the final evaluation.



the first semester and academic performance through the first academic year are also included. This data set was provided by the Rutgers–Camden Office of Institutional Research, whose partnership was instrumental in enabling this evaluation. In this analysis, outcomes for eligible students who enrolled in 2016 are compared with those of similar students who started at Rutgers– Camden in the two previous years.

We used rigorous qualitative methods to enhance our understanding of the quantitative analyses and to explore topics for which hard data were not available. A total of 22 students from the initial Bridging the Gap cohort were interviewed in the fall of 2017. Of these students, 14 had participated in the fall 2016 interviews conducted by King and Divringi (2017). Students were asked to reflect on their first year of college, describe their impressions of Bridging the Gap, and discuss their employment and financial situations. Each of the 22 interviews was transcribed and coded using qualitative data analysis software. A portion of the interviews was independently coded by two members of the research team and checked for intercoder reliability. For an in-depth description of the qualitative methodology, see Appendix A. The remainder of this report is broken into four sections. In the three following sections, each of the key research questions is addressed in the order they were posed. Findings from both the quantitative and qualitative analyses are discussed where applicable. The concluding section considers the implications of these preliminary findings for financial aid policy and administration.

I. Did the Bridging the Gap program affect admitted students' likelihood of enrolling at Rutgers-Camden?

More than 8,700 prospective students applied to Rutgers– Camden for admission in 2016, far exceeding the average of roughly 7,000 applicants in the two previous years. Based on interviews conducted in fall 2016 with Bridging the Gap beneficiaries, we know that the program played a role in the decision of some college-bound, lower-income students to enroll at Rutgers–Camden (King and Divringi, 2017). This is consistent with prior research suggesting that the availability of institutional aid can have a measurable effect on an applicant's decision to enroll at a given college (Hurwitz, 2012; van der Klaauw, 2002; Monks, 2009; Avery and Hoxby, 2004).

At 13.0 percent, the enrollment rate for admitted students (sometimes referred to as the yield rate) in 2016 was substantially higher than in the two previous years (10.1 percent) according to data provided by the institution.6 Owing primarily to a greater number of applicants but also to a higher enrollment rate, the 653 students in the 2016 cohort far exceeded the number of students in the prior two years (424 in 2015 and 420 in 2014), aligning with one of the administration's goals of increasing student enrollment (King and Divringi, 2017).

Responding to the call for future research to "see how the student body may be changing or diversifying rather than merely growing" as a result of institutional tuition discount programs (Lassila, 2010, p. 35), we eval-





*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Significance tests compare the likelihood of enrolling in 2016 with the likelihood in 2014–2015 for a given subgroup but do not compare results across subgroups. Percentages represent average marginal effects calculated from the binary logistic regression model provided in Appendix B, Table 1. Race categories exclude students who identify as Latino; the Latino category includes students of any race. Depending on the subgroup, anywhere from 0.6 to 3.0 percent of admitted students are excluded because they are missing data used to control for high school GPA, SAT score, or race/ethnicity in the regression model.

uate effects across a number of student characteristics and find that the increase in the enrollment rate was more pronounced for some groups of students than for others. Controlling for a host of student characteristics, we find that the likelihood of an admitted student from New Jersey enrolling at Rutgers–Camden in 2016 was 2.6 percentage points higher than in the previous two years (Figure 1).⁷ The likelihood increased significantly and by roughly the same amount for both male and female applicants, white applicants, Latino applicants, and those with a parent who had attended college. The likelihood of enrolling was much greater

in 2016 than in prior years for students with an AGI no higher than \$60,000 (5.2 percentage points)⁸ and for African-American students (4.9 percentage points); the likelihood of enrolling was not significantly greater in 2016 than in prior years for households with higher incomes, Asian students, or first generation students.

It is important to note that while the likelihood of enrolling at Rutgers–Camden increased significantly overall and for some specific groups of students, we cannot say that *college attendance*, per se, was higher for these students than it would have been without the program. Interviews with program participants suggest that many of these students were college-bound and were induced to enroll at Rutgers–Camden — rather than a twoyear or another four-year college — thanks to the Bridging the Gap program (King and Divringi, 2017).

⁶ The enrollment rate in fall 2016 also exceeded the average rate recorded during the previous five years (academic years 2011–2012 through 2015–2016) of 11.7 percent, as calculated using Integrated Postsecondary Education Data System (IPEDS) data from the U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

⁷ We focus on students residing in New Jersey because less than 2 percent of out-of-state applicants admitted to Rutgers–Camden enrolled at the institution in any of the years during the study period. Without regression controls, the enrollment rate for admitted students residing in New Jersey was 15.9 percent in 2014–2015 and 19.9 percent in 2016.

⁸ In studies of college choice that focus on selective private colleges or highaptitude students, Hurwitz (2012) finds suggestive evidence that students from lower-income families are more responsive to offers of institutional aid than are those from families with higher incomes, while Avery and Hoxby (2004) find fairly similar responses to aid regardless of income.

II. How has the program affected the affordability of college attendance for participating students?

At first glance, the answer to our second question seems glaringly obvious: Bridging the Gap improves college affordability by reducing or eliminating net tuition costs. However, there are several reasons a more thorough examination is warranted. Recent research has illuminated the complex demands on college students' time and financial resources (Goldrick-Rab, 2016; Kelchen, Hosch, and Goldrick-Rab, 2014) and the variety of strategies students employ to make ends meet (Cunningham and Santiago, 2008; Bozick, 2007; U.S. Department of Education, 2003). Furthermore, the design and delivery of financial aid programs appears to have profound implications for their effectiveness (Dynarski and Scott-Clayton, 2013; Goldrick-Rab, 2016). Accordingly, understanding the impact of Bridging the Gap on students' perception and experience of college affordability requires a multifaceted approach that takes into consideration the effectiveness of program implementation, the level of support provided, and students' financial situations.

Program Implementation

The process of applying for financial aid is notoriously complex (Dynarski and Scott-Clayton, 2006; Bettinger, Long, Oreopoulos, and Sanbonmatsu, 2012; Dynarski and Wiederspan, 2012). To its credit, the Bridging the Gap program does not require a separate application; it requires only the annual submission of a FAFSA form. Further, the calculation of the Bridging the Gap award is very straightforward: For lower-income students deemed eligible, the award should equal the difference between estimated tuition and general campus fee costs and the total amount of federal, state, and need-based institutional aid; for eligible middle-income students, the Bridging the Gap award should equal half of this difference.

Analysis of financial aid data from late fall 2016 for students in the first cohort indicates that not all first-year students seemingly eligible for Bridging the Gap — those with an AGI no higher than \$100,000, a U.S. citizen or permanent resident living in New Jersey, a full-time course load in the fall, and tuition and campus fee costs remaining after federal, state, and institutional needbased aid — received the level of financial support expected (Table 1). For eligible students, the Bridging the Gap award was within 20 percent of the expected amount for 87 of the 137 lower-income students (64 percent) and for 95 of 109 middleincome students (87 percent). In 47 of the 64 cases in which the award was not within 20 percent of the expected amount, eligible students had not received any award as of late fall 2016. This was particularly true for students with lower incomes.

An exploration of the data and subsequent conversations with Rutgers–Camden staff have shed some light on this

Table 1. Bridging the Gap Award: Actual vs. Expected as of Late Fall 2016

	Eligible Lower- Income	Eligible Middle- Income
Award Within 20% of Expected	87	95
Award Not Within 20% of Expected	d:	
Student Received an Award in Spring	6	4
Verification Was Incomplete or Delayed	21	2
Spring Adjustment to Need- Based Aid Left No Gap	20	3
Other	3	5
Total	137	109
Percent Within 20% of Expected	64%	87%
Percent Not Within 20% of Expected	36%	13%

Note: For students for whom the Bridging the Gap award differed by more than 20 percent from the authors' calculated value, the Rutgers–Camden administration provided an explanation on a case-by-case basis.

phenomenon. It seems that for about one-third of these affected students, the process of verifying their state or federal aid was not completed or was delayed, making them ineligible for a Bridging the Gap award. For another third, federal, state, or institutional aid increased in the spring, leaving no gap between need-based aid and tuition and campus fee costs. Ten students did not receive a Bridging the Gap award until the spring.

It would appear that Rutgers–Camden is not the first institution to encounter challenges implementing a new financial aid program. In their study of the Carolina Covenant program at the University of North Carolina at Chapel Hill, Clotfelter, Hemelt, and Ladd (2017) observed "logistical and programmatic kinks during the first few years" that, in part, led them to consider the fourth cohort as the first to "experience the 'full-fledged' Carolina Covenant" (14). Similarly, Goldrick-Rab, Kelchen, Harris, and Benson (2016) speculate that the implementation of the Wisconsin Scholars Grant "could have affected the impacts of the grant, especially for the first cohort" because of variations in financial aid officers' "understandings of the criteria regarding who was eligible for the grant, the conditions under which it could be renewed, and what messages they were to provide students about the award" (1803).

To the extent that these "kinks" led to changes in the sources and levels of financial support for Rutgers–Camden students, they may at least partly explain the feelings of stress, concern, and instability that many students expressed about financial aid during interviews conducted in late fall 2016 (King and Divringi, 2017) and that reemerged in the recent interviews discussed later.

Level of Financial Support Provided

It is clear that the Bridging the Gap program offset a substantial portion of tuition costs for eligible students in the 2016 cohort (Table 2). The typical full-time student's annual tuition and general campus fee totaled \$13,805. For eligible lower-income students, federal, state, and need-based institutional aid covered \$8,387, or roughly three-fifths of median tuition and campus fee costs. The Bridging the Gap program provided an award of \$3,418, representing 25 percent of tuition and campus fee costs for the typical lower-income student. These values include the substantial number of eligible students that had not received the expected level of support as of late fall 2016. As a result, the Bridging the Gap award was more than \$2,000 lower than the typical net tuition and fee costs for this group, even though these costs were expected to be covered by the program.

While costs were the same for eligible middle-income students, need-based aid unsurprisingly amounted to substantially less — \$2,500 for the typical student. As it was intended to do for middle-income students, Bridging the Gap covered roughly half of the remaining costs and represented a tuition discount rate of roughly 42 percent.

Table 2. Median Costs and Financial Aid Awards for 2016 Cohort

	Eligible Lower- Income	Eligible Middle- Income
Estimated Tuition and General Campus Fee	\$13,805	\$13,805
Federal, State, and Need-Based Institutional Aid	\$8,387	\$2,500
Net Tuition and General Campus Fee Costs	\$5,596	\$11,649
Bridging the Gap Award	\$3,418	\$5,825
Percent of Tuition and General Campus Fee Covered by Bridging the Gap	25%	42%
N	137	109

Notes: Estimates are as of late fall 2016. Estimated tuition assumes fulltime status in the fall and spring semesters.

As of late fall 2016, the Bridging the Gap program bestowed a substantially larger grant and represented a greater tuition discount rate for middle-income students than for their lowerincome counterparts, primarily because many eligible students in the latter group did not receive an award by late in their first semester. When the same analysis is run only for students who received the anticipated level of Bridging the Gap aid, the median value (\$5,419) and tuition discount rate (39 percent) for eligible lower-income students are similar to the benefits received by eligible middle-income students, although lower-income students may face more difficulty covering the nontuition costs associated with attending college.

Student Experiences

Alleviating Financial Stress

As expected, students receiving a Bridging the Gap award reported that the program improved their perception of the affordability of attending college. Nearly all interviewees described the program as alleviating financial stress by reducing their dependence on student loans, minimizing the financial burden on their family, or reducing their need to work extensively during the school year. Behavioral economists have documented the ways in which persistent financial anxiety can diminish the mental bandwidth available for other tasks (Shafir and Mullainathan, 2013). Many students reflected an intuitive understanding of this relationship, connecting the mental health benefits of reduced financial stress to their academic performance.

...I didn't have to stress as much about finances and I didn't have to ask anybody for money or anything like that. I didn't have to take out any loans, so that wasn't a stress... More time to study than to think about money. (Lower-Income Group)

A notable feature of the Bridging the Gap program is that it extends financial support considerably further up the income scale than most need-based financial aid programs. While much of the financial aid system is built on the assumption that dependent students will have access to their households' financial resources, our interviews build on prior research illuminating a more complex picture of students' financial circumstances (Goldrick-Rab, 2016). Some fit the model of financial dependence on their parents' resources, but most were responsible for covering at least some of their nontuition expenses, and several contributed to their family's finances. As a result, many did not feel as though their parents' income brackets were reflective of the resources they brought to bear for college.

I'm considered still under my mom's pay; I can't become independent yet, so that made it hard. But I mean, if I was independent, I think everything would be easier because you're really just going off what your parent's pay grade is. But if your parents are not willing to help you, there's nothing to support a student that's trying to figure out how to stay in college when the parent's not willing to fill out financial aid or assist. (Middle-Income Group)

Navigating Financial Aid

For some students, the experience of financial relief was at times undercut by the uncertainties and anxieties associated with the financial aid process. A growing body of literature has documented the obstacles students encounter as they navigate the complex landscape of financial aid programs. In particular, young adults from disadvantaged backgrounds may have less experience with bureaucratic processes, face greater difficulty gathering required information, and have less access to guidance around the application process (Dynarski and Scott-Clayton, 2013; Bettinger, Long, Oreopoulos, and Sanbonmatsu, 2012; Goldrick-Rab, 2016). By design, Bridging the Gap is embedded within the broader financial aid landscape, relying on students' and administrators' abilities to coordinate across federal, state, and institutional processes that determine the residual costs the program addresses.

Several interviewees recounted the difficulty and confusion they experienced while completing the FAFSA, although they were generally more comfortable with this process coming into their second year. Still, many struggled to make sense of the fluctuations in their financial aid packages as federal, state, and institutional aid awards were finalized, sometimes well after the semester had begun. For some students, these frustrating experiences undermined their trust in the financial aid process.⁹

But it's just frustrating because you pay it and they're like yeah, you don't owe anything. You're all good to go. You even had the paperwork. Then you get an e-mail like I had last year late saying I owed \$375 from Rutgers all later on, just randomly, even though after you already had been told from people in the department that you don't owe anything else. (Lower-Income Group)

... that's one of the things that I don't like about Bridging the Gap, because it is work, but you gotta — not even just be on top of it. You gotta watch it because it's guaranteed, but it's not guaranteed at the same time, I feel like. (Lower-Income Group)

Ongoing and Unanticipated Expenses

While interviewees acknowledged the financial relief of tuition reduction, it was clear from their accounts of day-to-day life that cash on hand was equally critical to their ability to attend college. This represents an important dimension of college affordability, since the inability to cover ongoing expenses can present a barrier to college persistence (Goldrick-Rab, 2016; Goldrick-Rab, Harris, and Trostel, 2009). Interviewees who assumed larger roles in their own college finances described operating on tight budgets. Whether for their own commuting costs and educational expenses or their share of the family's household expenses, students need liquid assets.

[There were] times where I was just eating noodles in my room because your meal plan ends and so then you have to pay out of pocket. But then you don't have that money because you have to pay for your tuition...I don't have a big meal plan. I live in an apartment. So it's figuring out how to pay for transportation to get home when I need to get home on top of groceries and little things, necessities, textbooks, keeping up with your computer, and everything like that. (Middle-Income Group)

So I give [my mom] \$100 for car insurance and then she doesn't make me pay rent, but I'll give her money when the electric bill is super high in the winter because we're all running our little space heaters. I give her money for that or food, stuff like that. (Middle-Income Group)

As described previously, a substantial majority of interviewees are at least partially responsible for covering school-related expenses during their college career. Common educational expenses not covered by Bridging the Gap included textbooks, computers, and school supplies, as well as certain fees.¹⁰ Commuter students often relied on a personal vehicle to quickly and conveniently travel between home, school, and work. These interviewees cited gas, insurance, parking passes, and repairs as major ongoing expenses.

Some textbooks will cost anywhere between \$400 and \$500, which would make my jaw drop. My calculus book, I think, was around \$450. And then after reading it's nonrefundable and just sitting there like, 'When am I ever gonna use this again?' (Lower-Income Group)

I definitely spent a lot of money because after that huge pay raise from \$9 to \$15, I'm like, 'Wow, this is a lot of money now.' Then the car breaks down, and you're like, 'Wow, I have nothing now.' (Lower-Income Group)

Interviewees identified a variety of different resources they used to cover ongoing and unanticipated expenses, including savings, grants, or scholarships; support from family members; employment income; and student loans. While many students with remaining tuition balances received financial support from their families, others enrolled in payment installment plans to smooth out the cost or used student loans to defer out-of-pocket spending. Particularly in their second year of college, students used savings from summer employment to cover schoolyear expenses. Many interviewees used several or even all of these resources. A similar patchwork of strategies has been documented by other scholars (Cunningham and Santiago, 2008; Goldrick-Rab, 2016; U.S. Department of Education, 2003).

I used the money I saved during the summer to help pay for car insurance and the car payments. And I just — eat and pay for gas. It's like my only expenses. So there's not really much that I have to pay for thanks to Bridging the Gap...But, yeah, I guess I just saved money during the summer, and that's how I pay for things

⁹ Consistent with our findings, Goldrick-Rab and Kolbe (2016) argue: "The American financial aid system asks students to trust that they will receive the right discount that renders college affordable. Ambiguity in the net price calculation contributes to a lack of trust that the price will, in fact, be right" (p. 241).

¹⁰ For the 2017–2018 school year, the total cost of mandatory fees not covered by Bridging the Gap ranged from \$219.50 to \$361.00 per semester. See: https://www.studentabc.rutgers.edu/sites/studentabc/ files/2017-2018%20Term%20Bill%20Rates%20-%20Camden.pdf (date accessed: April 2, 2018).



that I need to pay for. And if I run out of that, then my mom will help me out as much as she can. (Lower-Income Group)

...Bridging the Gap only pays partial costs for me, and that pays for tuition and I believe course fees. So I pay everything else out of pocket. But I also took a loan out for both of these semesters, just in case I needed it. So that helped pay off the rest of my costs. (Middle-Income Group)

For several interviewees, entering college with a strong academic background provided a distinct financial advantage in the form of merit-based institutional grants. By design, Bridging the Gap does not consider merit aid in its calculation of net tuition and campus fee costs. This is intended to avoid award displacement, which occurs when the receipt of private or merit-based grants results in the reduction of need-based financial aid (National Scholarship Providers Association, 2013). Merit awards enabled some recipients to receive cash refunds from their financial aid packages, helping to defray the nontuition educational and living expenses for which Bridging the Gap does not provide direct assistance.

Balancing School and Work

The majority of student interviewees worked during the school year, and nearly all held paid positions during the summer between their first and second years. Employment among college students is commonplace; in 2015 (the most recent year for which data are available), 42 percent of full-time undergraduate students enrolled in four-year institutions were employed,¹¹ and school-year employment is especially common among students from lower- and middle-income families (Bozick, 2007).

While working during school may not be inherently problematic, working intensively (often defined as more than 20 hours per week) or in ways that conflict with sleep schedules can negatively impact students' academic performance (Goldrick-Rab, 2016; Stinebrickner and Stinebrickner, 2003) and persistence (Bozick,

¹¹ U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, *Digest of Education Statistics: 2016*, Table 503.40. Percentage of 16- to 64-year-old undergraduate students who were employed, by attendance status, hours worked per week, and selected characteristics: 2005, 2010, and 2015. Available at https://nces.ed.gov/programs/digest/d16/tables/dt16_503.40.asp (accessed April 3, 2018).

2007; Johnson, Rochkind, Ott, and DuPont, 2009). In recent decades, as college enrollment has expanded among lower- and middle-income students, the share of full-time college students working intensively has increased (Perna, 2010). Several interviewees described experiences that align with this prior research.

It was right after my birthday, and my mom bought me a Fitbit for my birthday. And Fitbit tracks you on how much you sleep. And I was getting — it told me I was averaging two hours of sleep at night because it was right next to finals, so I had all these papers due. And I was still working 35-plus hours a week. (Lower-Income Group)

A recent experimental study examining grant aid found significant reductions in work hours and the likelihood of working overnight among students offered the aid (Broton, Goldrick-Rab, and Benson, 2016). Encouragingly, a number of interviewees who reported working intensively during their first year of college were able to stop working, reduce their hours, or switch to more favorable employment arrangements in their second year. Nearly all of these interviewees attributed their decision to the desire for better school-work balance. Many students who reported improvements in working conditions had switched to on-campus positions, typically funded by work-study grants, which offered greater flexibility around course schedules and the ability to reduce hours during final exams. This is consistent with prior research suggesting work-study employment is academically beneficial to students who would have otherwise worked off-campus (Scott-Clayton and Minaya, 2014).

For this semester, I kinda decreased my hours. The reason being, I'm taking more classes, so I kinda have to focus more on school. So, I think I'm down to 20 hours I work during the week, which for me is a little better just so I'm not kinda overworking myself, you know? (Lower-Income Group)

So then I had did an interview with [an on-campus employer], and it's a major difference from my old job to my job now...It's all about your grades. It's all about your class. Your work comes second to your life and your classes. (Middle-Income Group)

However, it was clear that some interviewees did not have the ability to meaningfully reduce work hours and continue to make ends meet. These students were often acutely aware of the time tradeoff between working and studying but struggled to find a manageable balance. Although some sought more flexible employment arrangements, they did not view on-campus opportunities as viable alternatives because of lower potential earnings or longer commutes from home. Additionally, some who had stopped working in order to focus on school suggested that they may be induced to return to work if family financial circumstances changed, drawing into question the sustainability of work hour reductions. These challenges further reinforce the importance of cash resources to students' experiences of college affordability (Goldrick-Rab, Harris, and Trostel, 2009). It tears on your body and your mind but — well, I know I have a test. But I know I also have to work because if I don't work, I don't have gas money to make it to school to take a test to graduate. So I need more money. So it's kinda like a domino effect for everything. (Lower-Income Group)

Existing research suggests that socioeconomic status is an important predictor of a family's ability to financially contribute to their child's college education (U.S. Department of Education, 2003), with African-American students facing the greatest constraints in that regard (Addo, 2018). To the extent that students from lower-income and lower-wealth households seek to reduce the amount of time they dedicate to paid employment during the school year, the most likely tradeoff appears to be an increased reliance on student loans (Addo, Houle, and Simon, 2016).

III. Did eligible students see improvements in academic performance and persistence at Rutgers-Camden?

There is a substantial body of research on the ways in which financial aid affects student outcomes. Financial aid programs that award flexible and generous aid to students selected on the basis of both financial need and academic merit have been evaluated (Angrist, Autor, Hudson, and Pallais, 2017), as have programs that include robust academic supports for study at both fouryear institutions (Page, Kehoe, Castleman, and Sahadewo, 2017; Clotfelter, Hemelt, and Ladd, 2017) and community colleges (Scrivener, et al., 2015). The effects of the federal Pell Grant have been scrutinized (Bettinger, 2004), along with state-run merit aid programs (Dynarski, 2004) and local, place-based promise programs (Bartik, Hershbein, and Lachowska, 2017). With some exceptions, Page and Scott-Clayton (2016) find that these types of programs have generally positive effects on college access, persistence, and, where studied, degree completion.

Although many of the programs studied to date differ dramatically from Bridging the Gap, need-based grant programs in Florida and Wisconsin are similar, and their evaluations by Castleman and Long (2016) and Goldrick-Rab, Kelchen, Harris, and Benson (2016), respectively, can serve as benchmarks by which the results of the planned five-year evaluation of the Bridging the Gap program can ultimately be compared. In the remainder of the paper, we explore the program's first-year impacts on measures of academic performance.

Analytical Approach

In this interim evaluation, we use three metrics to assess whether the Bridging the Gap program affected the academic performance of eligible students in year one: credit hours completed, cumulative GPA, and the proportion of students that met program requirements and reenrolled at Rutgers-Camden in year two. We compare academic performance for the 2016 cohort with similar students in the two previous years. For all three years, we use information on student characteristics and financial aid levels that determine program eligibility to assign each student to one of four groups: Eligible Lower-Income (AGI≤\$60,000); Eligible Middle-Income (AGI \$60,001–100,000); eligible (AGI≤\$100,000) but with no gap remaining after the application of federal, state, and needbased institutional aid (hereafter No Tuition Gap); and Not Eligible (Table 3).¹² Eligible Lower-Income and Eligible Middle-Income students in 2016 represent the program's treatment groups, while similar students from the previous two years provide a baseline comparison. Students with no tuition gap and ineligible students are included for reference.

Table 3. Students Included in Study

	2014–2015 Cohorts	2016 Cohort
Eligible Lower-Income (≤\$60,000)	131	137
Eligible Middle-Income (\$60,001–100,000)	153	109
No Tuition Gap (≤\$100,000)	230	194
Not Eligible	294	194
Total	808	634

Note: Excludes 55 dependent children of Rutgers University faculty or staff identified as receiving tuition remission.

Since the changes in academic advising and course preregistration procedures discussed previously took full effect in 2016, differences in academic performance between the 2014–2015 and 2016 cohorts cannot necessarily be attributed to Bridging the Gap. To isolate the program's effects, we supplement a largely descriptive look at changes in academic performance during the study period with difference-in-differences (DID) analyses comparing students from the Eligible Lower-Income group with those from the No Tuition Gap group whose family AGI was no higher than \$60,000.¹³

In theory, both Eligible Lower-Income students and No Tuition Gap students should have benefited from enhancements to academic advising, course enrollment, or other institutional changes that occurred during the study period. With a few exceptions, each group was statistically similar across the 2014–2015 and 2016 cohorts, and our DID analyses control for student characteristics to partly ameliorate some of the differences.¹⁴ We also acknowledge the possibility that as a direct result of the Bridging the Gap program, students that applied to and enrolled at Rutgers–Camden in 2016 may have differed from students in earlier cohorts in ways that are not captured by available data. Assuming differences in unobservable characteristics are not substantial, if the change from 2014–2015 to 2016 was measurably greater for Eligible Lower-Income students than for No Tuition Gap students, we can reasonably attribute this difference to Bridging the Gap eligibility.¹⁵

Rather than focusing our analysis only on the subset of eligible students who received the expected Bridging the Gap award as of late fall 2016, we believe it is important to consider the outcomes for all eligible students in both the descriptive and DID analyses.¹⁶ All these students enrolled at Rutgers–Camden with the expectation that they would benefit from the program and that financial aid would be delivered in their first semester. The overall effects of the program on the first cohort can be estimated only if the experiences of all eligible students are captured. To the extent that delays in aid delivery and eligibility verification are minimized in subsequent years for this group of students or future cohorts, the program may have a greater impact than is estimated in this interim evaluation.

For each of the three metrics evaluated — credit hours completed, cumulative GPA, and the proportion of students that met program requirements and reenrolled at Rutgers–Camden in year two — we present descriptive statistics showing the average for the 2014–2015 cohorts, the average for the 2016 cohort, and the difference between these groups. Simple t-tests and chi-square tests indicate whether the changes are statistically significant, although we do not control for differences in underlying student characteristics. The following discussion also presents the results of our DID models, which incorporate the appropriate regression controls for student characteristics associated with each outcome.

¹² The 55 dependent children of Rutgers University faculty or staff identified as receiving tuition remission are excluded from this analysis. Appendix B, Table 2 provides descriptive statistics for these four groups of students by cohort.

¹³ In contrast with our descriptive analyses and the descriptive statistics provided in the appendix, the No Tuition Gap group in our DID analyses excludes nine students with an AGI over \$60,000, so both groups consist of lower-income students only.

¹⁴ Eligible Lower-Income students had significantly lower SAT scores and were more likely to be enrolled in the College of Arts and Sciences in 2016 than in 2014–2015. The racial/ethnic composition of No Tuition Gap students was somewhat different across the cohorts, and this group had slightly more need-based aid in 2016 than in 2014–2015. Our DID analyses control for race/ethnicity and college of enrollment.

¹⁵ Because we have data for only two years before the introduction of Bridging the Gap in 2016, we are not able to establish that Eligible Lower-Income and No Tuition Gap students historically exhibited parallel trends in academic performance. For these two groups of students, however, we did evaluate changes between 2014 and 2015 in credit hours completed, cumulative GPA, and the proportion of students that met program requirements and reenrolled in Rutgers–Camden in year two and found no significant differences.

¹⁶ In research parlance, this is referred to as an intent-to-treat approach. Focusing only on the students who received the expected Bridging the Gap award would be an as-treated or a treatment-on-the-treated approach.

Credit Hours Completed in Year One

Based on our descriptive analysis, the number of credit hours completed through the summer before the students' sophomore year was 0.7 hours higher in 2016 than in 2014–2015 (Table 4), although this difference was not statistically significant.¹⁷ At 1.7 hours, the difference was much greater and significant for Eligible Middle-Income students. For Eligible Lower-Income students, the 1.4 credit hour increase in 2016 was not statistically significant.

Table 4. Credit Hours Completed in Year One (No Regression Controls)

	2014–2015		20	2016		
	Ν	Mean	N	Mean	Difference	
Eligible Lower-Income	130	25.4	137	26.8	1.4	
Eligible Middle-Income	153	28.2	109	29.9	1.7**	
No Tuition Gap	230	26.0	194	27.8	1.8**	
Not Eligible	294	29.1	194	28.4	-0.7	
Total	807	27.5	634	28.1	0.7	

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Includes classes taken in the first fall and spring, the summer before the first fall, the winter term, and the summer after the first spring term. Remedial or developmental classes are included. Students that did not return for the spring semester are included. Students who received tuition remission and one student who transferred to another Rutgers University campus in the spring are excluded.

The No Tuition Gap group earned 1.8 more credit hours in 2016 than in 2014–2015, an

increase that was significant, even though that group did not benefit from the Bridging the Gap program. This is also the case for the third metric, motivating the DID analysis to control for effects that may be the result of changes in academic advising practices or other cohort-related factors.

The results of the DID analysis for credit hour completion indicate that lower-income students overall completed significantly more credit hours in 2016 than in 2014–2015 (Appendix B, Table 3). Since the practice of preregistering students for more credit hours began in 2016, these results are unsurprising. However, the increase in completed credit hours was statistically equivalent for the Eligible Lower-Income and No Tuition Gap groups, indicating that having unmet tuition need in 2016 was not independently associated with a significant change in credit hour completion (Table 5). This suggests that Bridging the Gap did not drive the increase in this indicator for Eligible Lower-Income students.

While Bridging the Gap's credit completion requirement was designed to encourage degree progress, interviews with students suggest that the requirements could also place students struggling with classes or facing a difficult life event in a financially perilous position by discontinuing aid if the credit requirement was not satisfied.

This semester I have one or two classes that I'm really worried about. So if I do poorly on them, I'm gonna be removed from the

Table 5. Change in Mean Credit Hours Completed in Year One (DID Analysis with Controls)

	Difference from 2014–2015 to 2016	Difference-in- Differences
Eligible Lower-Income	1.5	0.0
No Tuition Gap	2.4	-0.8

Difference-in-differences estimate is not significant at p < 0.10.

Note: For this table, No Tuition Gap excludes nine students with an AGI over \$60,000, so both groups consist of lower-income students only. Full regression model results are provided in Appendix B, Table 3.

Bridging the Gap study. And that's gonna make it difficult because FAFSA – I don't know how FAFSA's gonna work. Because this is covering around I think four to five grand of my tuition. So I'm gonna have to take – either ask FAFSA for more loans or seek other help from banks or something. (Middle-Income Group)

In their review of the literature, Dynarksi and Scott-Clayton (2013) conclude that "dollars with strings attached produce larger effects than dollars alone" (p. 32), although recent research suggests that, in the community college context, performance requirements can decrease persistence for some students while having modest or negligible effects on academic performance for those who continue their education (Schudde and Scott-Clayton, 2016; Scott-Clayton and Schudde, 2016). The aggregate benefit of performance requirements may not hold for students that struggle academically (Kinsley and Goldrick-Rab, 2015) or that are financially compelled to work extensive hours (Goldrick-Rab, 2016), as described previously. An analysis of a

¹⁷ Because they count toward the program's requirement that participants complete 30 credit hours each year, this measure includes developmental (i.e., remedial) courses. During the interviews, some students expressed confusion about whether developmental classes counted toward this requirement.



sample of degree-seeking undergraduates at both community colleges and four-year institutions found that while taking 12 credits instead of 15 in the first semester was associated with poorer graduation rates for students working fewer than 20 hours per week, the relationship was insignificant for those working 30 hours or more per week (Attewell and Monaghan, 2016). Research has shown that support services are important when encouraging students to complete 30 credits per year (Klempin, 2014), and the students we interviewed spoke enthusiastically about the value of academic advising and tutoring services.

I took a few tutoring sessions, which helped a lot because they raised my grade in the class tremendously. (Middle-Income Group)

[My adviser is] really helpful, not with just picking your classes, but with trying to help you understand what you wanna do, and then how to take the first step and go about what you're trying to do, or where to actually look for help or where to actually go in order to reach your goal, pretty much. (Middle-Income Group)

For interviewees who did not complete 30 credit hours during the fall and spring semesters, the summer term proved an essential last chance to retain eligibility for Bridging the Gap before the start of the second fall semester. Indeed, roughly one-quarter of Eligible Lower-Income students (24 percent) and Eligible Middle-Income students (26 percent) enrolled in summer courses, a rate approximately 10 percentage points higher than similar students in the previous two years.

But it was really hard and scary because if I didn't pass those summer classes, I would've lost my Bridging the Gap, and then I would've been like, 'How am I gonna pay for college?' It's — it was somewhat stressful, but I got through it, and I passed all my classes, so I'm here now. (Lower-Income Group)

Student enrollment in summer courses was often driven by students receiving a notification that they had completed an insufficient number of credits. In fact, a common theme that emerged in the interviews was that students were generally unfamiliar with or unsure of Bridging the Gap's GPA and credit completion requirements, which may in part explain the lack of an independent program effect on credit hour completion. For those students who excelled academically, the program requirements were an afterthought or secondary to more stringent requirements imposed by scholarships or Honors College participation. A number of students who faced academic challenges during their freshman year, either by failing or withdrawing from a class, became more aware of Bridging the Gap's program requirements after running into academic trouble. So I didn't know that until my second semester, when it was realized that I didn't have that all the way. I didn't have my — I didn't have all the credits that I needed. And so I feel like that wasn't — there was no outline for that for telling us the minimum requirement for credits... (Middle-Income Group)

In spite of higher summer enrollment rates and a strong advising push for enrollment in 15 credits per semester, roughly one-third of the Eligible Lower-Income and Eligible-Middle Income students completed fewer than 30 credit hours in their first year.

Table 6. Cumulative GPA in Year One (No Regression Controls)

	2014–2015		20	Mean	
	N	Mean	N	Mean	Difference
Eligible Lower-Income	128	2.64	136	2.79	0.15
Eligible Middle-Income	153	3.04	109	3.16	0.12
No Tuition Gap	230	2.62	194	2.74	0.13
Not Eligible	294	3.13	192	3.18	0.05
Total	805	2.89	631	2.96	0.07

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Reflects the cumulative GPA for the last term reported through the summer after the first spring term. Students who received tuition remission and for whom a GPA was never calculated because no qualifying classes were passed are excluded, as is one student who transferred to another Rutgers University campus in the spring.

Cumulative GPA in Year One

As indicated in Table 6, there was little difference in cumulative GPA in 2016 relative to the previous two years for students eligible for the Bridging the Gap program. Eligible Lower-Income (0.15), Eligible Middle-Income (0.12), and No Tuition Gap (0.13) students saw marginal increases in 2016 that were not statistically significant. The DID analysis again finds that, controlling for underlying characteristics, lower-income students overall performed significantly better on this metric in 2016 (Appendix B, Table 3). Still, we find no independent effect of Bridging the Gap eligibility (Table 7).

Compared with the 30 credit hour requirement, attaining a minimum cumulative GPA of 2.0 was less of a hardship for most Eligible Lower-Income and Eligible Middle-Income students; only 13 percent failed to meet this minimum.

The 2.0 GPA, I feel I could do that. That was simple for me. But I could do good in the classes I was good at. But statistics, I withdrew from that, so I didn't have all the courses that I needed. So I ended up taking a summer class. But I got my credits for that one. So I had the 30 credits before the start of the school year. So I don't think that's a problem. (Lower-Income Group)

Meeting Program Requirements and Reenrolling at Rutgers–Camden in Year Two

In order to maintain eligibility for Bridging the Gap aid, students must both complete 30 credit hours and remain in good academic standing. In the data set used in this analysis, there was no reliable indicator for the latter, and the respective colleges at Rutgers–Camden have slightly different definitions of good academic standing. For each, however, a cumulative GPA below 2.0 appears sufficient to place a student on academic probation, and we use the combination — 30 credit hours completed and a

Table 7. Change in Mean Cumulative GPA in Year One (DID Analysis with Controls)

	Difference from 2014–2015 to 2016	Difference-in- Differences
Eligible Lower-Income	0.17	0.04
No Tuition Gap	0.21	-0.04

Difference-in-differences estimate is not significant at p < 0.10.

Note: For this table, No Tuition Gap excludes nine students with an AGI over \$60,000, so both groups consist of lower-income students only. Full regression model results are provided in Appendix B, Table 3.

cumulative GPA of at least 2.0 — to determine whether a student met the program's requirements in year one.

Among the administration's goals when designing the Bridging the Gap program were improving college persistence for beneficiaries and increasing student enrollment (King and Divringi, 2017). Indeed, research has shown that the high cost of attending college and the need to generate income through work often function as barriers to college persistence (Johnson, Rochkind, Ott, and DuPont, 2009), so to the extent that Bridging the Gap can address one or both of these issues, it may positively impact students' ability to remain in school. Unfortunately, the data set at our disposal does not track students who transfer from Rutgers-Camden to an institution outside the Rutgers University system, so we are unable to comment on whether the program increases college persistence, per se. Instead, we use reenrollment at Rutgers-Camden as an indicator of retention. If financial aid offered by the program helps lower- and middle-income students persist in college and makes them more likely to do so at Rutgers-Camden, the rate of reenrollment should reflect these effects.

Roughly half (48.1 percent) of the students in the full 2014-2015 cohorts reenrolled at Rutgers-Camden in their second fall semester and would have met the academic requirements of Bridging the Gap, were it available in those years (Table 8). For the 2016 cohort, this proportion was markedly higher (56.8 percent). The proportion was statistically similar for the Not Eligible group but was 13.5 percentage points higher for Eligible Lower-Income students and 11.2 percentage points higher for those in the No Tuition Gap group. The difference between treatment and baseline was largest for Eligible MiddleTable 8. Proportion of Students that Met Program Requirements and Reenrolled at Rutgers– Camden in Year Two (No Regression Controls)

	2014–2015		20	Percentage	
	N	Percent	N	Percent	Point Difference
Eligible Lower-Income	131	41.2	137	54.7	13.5**
Eligible Middle-Income	153	47.7	109	71.6	23.8***
No Tuition Gap	230	40.9	194	52.1	11.2**
Not Eligible	294	57.1	194	54.6	-2.5
Total	808	48.1	634	56.8	8.6***

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Program requirements are defined as completing 30 credit hours and attaining at least a 2.0 cumulative GPA, which are described in Tables 4 and 6. Students are excluded if they received tuition remission.

Income students, for whom it rose by more than half, from 47.7 percent in 2014–2015 to 71.6 percent in 2016.

Our DID analysis again calls into question whether the observed improvements can be attributed to Bridging the Gap (Table 9). Consistent with our findings for credit hours completed and cumulative GPA, membership in the 2016 cohort significantly increased the likelihood that lower-income students would meet program requirements and reenroll at Rutgers–Camden (Appendix B, Table 3). However, the independent effect of Bridging the Gap eligibility was small and statistically insignificant.

Receipt of Bridging the Gap Aid in 2016

While our DID results suggest Bridging the Gap eligibility did not contribute significantly to the improvements observed in the three indicators discussed previously, it is worth reiterating that a substantial portion of the Eligible Lower-Income students in our sample had not actually received the award expected under the program parameters by the end of their first semester, leaving them with unmet tuition and fee costs. Existing literature and our student interviews suggest that insufficient aid awards may undercut students' confidence in their ability to afford school or require them to work longer hours to cover expenses (Goldrick-Rab, 2016), both of which have the potential to negatively affect credit completion and persistence.

While small sample sizes limit our ability to make rigorous statistical claims about the importance of aid receipt, we find substantially higher levels of credit completion and reenrollment for Eligible Lower-Income students who received the anticipated amount of Bridging the Gap aid compared with those who did not (Table 10). These effects may have been

Table 9. Percentage Point Change in Proportion of Students that Met Program Requirements and Reenrolled at Rutgers– Camden in Year Two (DID Analysis with Controls)

	Difference from 2014–2015 to 2016	Difference-in- Differences
Eligible Lower-Income	16.3	1.0
No Tuition Gap	15.3	1.0

Difference-in-differences estimate is not significant at p < 0.10.

Note: For this table, No Tuition Gap excludes nine students with an AGI over \$60,000, so both groups consist of lower-income students only. Full regression model results are provided in Appendix B, Table 3.

driven by the aid itself or by underlying differences between these two groups of students; those who received less aid than anticipated were disproportionately likely to identify as Latino and had a significantly lower average SAT score and average AGI. Further, when we restrict the DID treatment group to students who received the expected amount of aid, we find that Eligible Lower-Income students were marginally more likely to have met program requirements and to have reenrolled at Rutgers–Camden than were those in the No Tuition Gap group.¹⁸ Together, these findings lend some support to the notion that the insignificance of Bridging the Gap eligibility in our DID analyses may reflect implementation challenges rather than a lack of importance of financial aid.

¹⁸ Because of challenges identifying an appropriate prior-year comparison group for this subset of Eligible Lower-Income students, the full results of this analysis are not presented in this report but are available upon request.

Table 10. Academic Performance of Eligible Lower-Income Students in 2016 Cohort (No Regression Controls)

Bridging the Gap Award Relative to Expectations	Award within 20% of Expecta- tions	Award more than 20% Below Expec- tations	Difference
Reenrolled at Rutgers-Camden in Year Two	92.0%	71.4%	20.5***
Mean Credit Hours Completed in Year One	30.2	27.0	3.2**
Mean Cumulative GPA in Year One	3.03	2.94	0.09
Met Program Requirements and Reenrolled at Rutgers–Camden in Year Two	67.8%	30.6%	37.2***

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Program requirements are defined as completing 30 credit hours and attaining at least a 2.0 cumulative GPA, which are described in Tables 4 and 6. As reported in Table 1, 87 Eligible Lower-Income students received a Bridging the Gap award within 20 percent of the expected value as of late fall 2016; for 50, the award was not within 20 percent of the expected value, but only 49 are included in this table because the award for one student was higher than expected. Mean credit hours completed and cumulative GPA calculations include only students who reenrolled in year two, so the N is reduced to 80 and 35 for these calculations.

IV. Conclusions

Rutgers–Camden's 2016 cohort of first-year students was roughly 50 percent larger than in the previous two years. This sizable increase can be attributed to both a substantial rise in the number of applicants and a significantly higher likelihood of admitted students enrolling at the institution. The enrollment effect was greatest for students from households with an AGI at or below \$60,000, lending some support to the characterization of a tuition discount program such as Bridging the Gap as a "very powerful recruitment tool, especially for price-sensitive students who might not enroll if the 'sticker price' is beyond their ability to pay" (Hillman, 2010, p. 18).

As an interim evaluation with only one year of academic data for program participants, we cannot make any definitive claims about the effects of the Bridging the Gap program on longterm student outcomes. Preliminary findings suggest that for Eligible Lower-Income students, the program had little effect on cumulative GPA, the number of credit hours completed, or the likelihood of meeting program requirements and returning to Rutgers–Camden in year two. However, it is worth noting that our descriptive statistics show substantial improvements in the last two indicators for income-eligible students in the 2016 cohort. The most substantial effect, but one that cannot be tested rigorously at this time, is that Eligible Middle-Income students were considerably more likely to meet program requirements and reenroll at Rutgers–Camden for a second year of study.

We leave open the possibility that improvements in the aid delivery process may lead to stronger program effects for lower-income students. More than one-third of Eligible Lower-Income students had not received a Bridging the Gap award late in their first semester. While some received an award in the spring and others had their tuition and general campus fee covered by other need-based aid, a substantial number encountered difficulties verifying their eligibility for state or federal aid that affected their receipt of a Bridging the Gap award. There is some evidence that Eligible Lower-Income students who received the expected level of Bridging the Gap aid in the fall semester outperformed those in the 2016 cohort who received less than anticipated, but sample size constraints do not allow us to determine whether these differences can be attributed to the program. In subsequent analyses, we will be particularly attuned to how many students from the 2016 cohort remain eligible for the program and receive aid consistently over the course of their college careers. Recent research

indicates that some financial aid programs suffer from high rates of attrition (Castleman and Long, 2016) and identifies this topic as "an important area for further research" (Goldrick-Rab, Kelchen, Harris, and Benson, 2016, p. 1789).

One surprising finding from this interim evaluation is that lower-income students who had no tuition gap as a result of substantial need-based financial aid in fall 2016 significantly outperformed their counterparts from the previous two years, despite not being eligible for a Bridging the Gap award. This finding may not stand the test of time as more academic data are collected in subsequent years, but if it does, it may provide some indication of the effectiveness of academic or other interventions implemented by Rutgers–Camden. Alternatively, there is the possibility that the program itself and the institution's marketing of it induced students with different unobservable characteristics to enroll at Rutgers–Camden in fall 2016.¹⁹ This could affect the comparability of our treatment and baseline groups, and it may help explain the significant improvement in academic performance we observe for No Tuition Gap students.

¹⁹ Perna (2016) notes the signal that promise programs send regarding the ability to attend college may increase college aspirations for some students, and Carruthers and Fox (2016) suggest that the messaging of a "free community college" program may affect students' educational expectations. As an example of how the Bridging the Gap program may have changed the types of students enrolling at Rutgers–Camden in ways that cannot be observed in the data, interviews with program participants suggest that some students would have likely begun their postsecondary careers at a community college were it not for the program (King and Divringi, 2017). See Clotfelter, Hemelt, and Ladd (2017) for a discussion of this analytical drawback as it relates to their study of a financial aid program in North Carolina.



Finally, although preliminary, the results presented in this paper already point to a few lessons for practice. First, it appears that implementation of last-dollar programs can be hampered by the complexity of processing other sources of need-based aid. Institutions contemplating similar programs may want to review the application processes and timelines of existing need-based aid sources and assess their capacity for managing award variability. Second, we find that clear and effective communication of program requirements is critical to participants' continued eligibility. This may require ensuring that academic advisers and financial aid staff are delivering consistent messages to students regarding program specifics. Finally, institutions should consider that higher credit completion requirements may increase students' reliance on summer classes. This is particularly the case for students who may need to work long hours during the school year or who struggle in certain courses. Since many federal and state sources of need-based aid are not available for summer terms, institutions may want to consider extending supplemental aid to vulnerable students.

As students in the inaugural Bridging the Gap cohort continue their academic pursuits, we will continue to study the effects of the program. Interviews with willing students will be conducted each fall, and academic performance data will be evaluated again after years three and five. At its conclusion, this study will contribute to the growing body of literature on the ways in which financial aid programs can affect academic success for lower- and middle-income students.

Works Cited

Addo, F. R. (2018). "Parents' Wealth Helps Explain Racial Disparities in Student Loan Debt," Federal Reserve Bank of St. Louis, *In the Balance*, issue 19 (March), pp. 1–3.

Addo, F. R., J. N. Houle, and D. Simon (2016). "Young, Black, and (Still) in the Red: Parental Wealth, Race, and Student Loan Debt," *Race and Social Problems*, 8(1), 64–76.

Attewell, P., and D. Monaghan (2016). "How Many Credits Should an Undergraduate Take?" *Research in Higher Education*, 57(6), 682–713.

Avery, C., and C. M. Hoxby (2004). "Do and Should Financial Aid Packages Affect Students' College Choices?" in C. M. Hoxby, ed., *College Choices: The Economics of Where to Go, When to Go, and How to Pay For It* (Chicago: University of Chicago Press) pp. 239–301.

Bartik, T. J., B. J. Hershbein, and M. Lachowska (2017). *The Effects of the Kalamazoo Promise Scholarship on College Enrollment, Persistence, and Completion*, Kalamazoo: W.E. Upjohn Institute for Employment Research.

Betttinger, E. (2004). "How Financial Aid Affects Persistence," Working Paper No. 10242. Cambridge: National Bureau of Economic Research.

Bettinger, E. P., B. T. Long, P. Oreopoulos, and L. Sanbonmatsu (2012). "The Role of Application Assitance and Information in College Decisions: Results from the H&R Block FAFSA Experiment," *Quarterly Journal of Economics*, 127(3), 1205–42.

Bozick, R. (2007). "Making It through the First Year of College: The Role of Students' Economic Resources, Employment, and Living Resources," *Sociology of Education*, 80(3), 261–84.

Broton, K. M., S. Goldrick-Rab, and J. Benson (2016). "Working for College: The Causal Impacts of Financial Grants on Undergraduate Employment," *Educational Evaluation and Policy Analysis*, 38(3), 1–18.

Carruthers, C. K. and W. F. Fox (2016). "Aid for All: College Coaching, Financial Aid, and Post-Secondary Persistence in Tennessee," *Economics of Education Review*, 51, 97–112.

Castleman, B. L. and B. T. Long (2016). "Looking beyond Enrollment: The Causal Effect of Need-Based Grants on College Access, Persistence, and Graduation," *Journal of Labor Economics*, 34(4), 1023–73. Clotfelter, C. T., S. W. Hemelt, and H. F. Ladd (2017). "Multifaceted Aid for Low-Income Students and College Outcomes: Evidence from North Carolina," Working Paper No. 22217. Cambridge: National Bureau of Economic Research.

College Board and Art & Science Group. (2012, September). "A Majority of Students Rule Out College Based on Sticker Price," *studentPOLL*, 9(1). College Board and Art & Science Group. Available at: https://www.artsci.com/insights/studentpoll/volume-9-issue-1.

Cunningham, A. F. and D. A. Santiago (2008). *Student Aversion to Borrowing: Who Borrows and Who Doesn't*. Washington, D.C.: Institute for Higher Education Policy; Excellencia in Education.

Dynarski, S. (2004). "The New Merit Aid," in C. M. Hoxby, ed., *College Choices: The Economics of Where to Go, When to Go, and How to Pay For It* (Chicago: University of Chicago Press) pp. 63–100.

Dynarski, S. M. and J. E. Scott-Clayton (2006). "The Cost of Complexity in Federal Student Aid: Lessons from Optimal Tax Theory and Behavioral Economics," Working Paper No. 12227. Cambridge: National Bureau of Economic Research.

Dynarski, S. and J. Scott-Clayton (2013). "Financial Aid Policy: Lesson From Research," *Future of Children*, 23(1), 67–91.

Dynarski, S. and M. Wiederspan (2012). "Student Aid Simplification: Looking Back and Looking Ahead," Working Paper No. 17834. Cambridge: National Bureau of Economic Research.

Goldrick-Rab, S. (2016). *Paying the Price: College Costs, Financial Aid, and the Betrayal of the American Dream*, Chicago: University of Chicago Press.

Goldrick-Rab, S. and T. Kolbe (2016). "A Matter of Trust: Applying Insights From Social Psychology to Make College Affordable," *Policy Insights from the Behavioral and Brain Sciences*, 3(2), 237–44.

Goldrick-Rab, S., D. N. Harris, and P. A. Trostel (2009). "Why Financial Aid Matters (or Does Not) for College Success: Toward a New Interdisciplinary Perspective," in J.C. Smart, ed., *Higher Education: Handbook of Theory and Research, Vol. XXIV* (New York: Springer) pp. 1–45.

Works Cited

Goldrick-Rab, S., R. Kelchen, D. N. Harris, and J. Benson (2016). "Reducing Income Inequality in Educational Attainment: Experimental Evidence on the Impact of Financial Aid on College Completion," *American Journal of Sociology*, 121(6), 1762–1817.

Hillman, N. W. (2010). "Who Benefits from Tuition Discounts at Public Universities?" *Journal of Student Financial Aid*, 40(1), 17–30.

Hurwitz, M. (2012). "The Impact of Institutional Aid on College Choice," *Educational Evaluation and Policy Analysis*, 34(3), 344–63.

Johnson, J., J. Rochkind, A. N. Ott, and S. DuPont (2009). *With Their Whole Lives Ahead of Them: Myths and Realities About Why So Many Students Fail to Finish College*, New York: Public Agenda.

Kelchen, R., B. J. Hosch, and S. Goldrick-Rab (2014). "The Costs of Collge Attendance: Trends, Variation, and Accuracy in Institutional Living Cost Allowances," Working Paper. Madison: Wisconsin HOPE Lab, University of Wisconsin-Madison.

King, A. and E. Divringi (2017). "Navigating the First Semester: How Students Get to and Get by in College," Philadelphia: Federal Reserve Bank of Philadelphia.

Kinsley, P. and S. Goldrick-Rab (2015). "Making the Grade: The Academic Side of College Life among Financial Aid Recipients," Working Paper. Madison: Wisconsin HOPE Lab, University of Wisconsin-Madison.

Klempin, S. (2014). *Redefining Full-Time in College: Evidence on 15-Credit Strategies*, New York: Community College Research Center, Teachers College, Columbia University.

Lassila, N. E. (2010). "The Relationship of Institutional Tuition Discounts with Enrollment at Private, Not-for-Profit Institutions," *Journal of Student Financial Aid*, 40(3), 26–38.

Miller-Adams, M. (2015). *Promise Nation: Transforming Communities Through Place-Based Scholarships*, Kalamazoo: W.E. Upjohn Institute for Employment Research.

Monks, J. (2009). "The Impact of Merit-Based Financial Aid on College Enrollment: A Field Experiment," *Economics of Education Review*, 28, 99–106. National Scholarship Providers Association (2013). *Impact* of Award Displacement on Students and their Families: Recommendations for Colleges, Universities, Policymakers and Scholarship Providers. White Paper. Boulder: National Scholarship Providers Association.

Page, L. C. and J. Scott-Clayton (2016). "Improving College Access in the United States: Barriers and Policy Responses," *Economics of Education Review*, 51, 4–22.

Page, L. C., S. Kehoe, B. L. Castleman, and G. A. Sahadewo (2017). *More than Dollars for Scholars: The Impact of the Dell Scholars Program on College Access, Persistence and Degree Attainment*. Available at SSRN: https://ssrn.com/ abstract=2726320.

Perna, L. W. (2010, July-August). "Understanding the Working College Student," *Academe*, 96(4), 30–3. Available at https:// www.aaup.org/article/understanding-working-college-student.

Perna, L. W. (2016). Delivering On the Promise: Structuring College Promise Programs to Promote Higher Education Attainment for Students from Underserved Groups, Philadelphia: University of Pennsylvania, Alliance for Higher Education and Democracy.

Perna, L. W., E. W. Leigh, and S. Carroll (2018). "'Free College:' A New Approach and Improved State Approach to Increasing Educational Attainment?" *American Behavioral Scientist*, 61(14), 1740–56.

Schudde, L. and J. Scott-Clayton (2016). "Pell Grants as Performance-Based Scholarships? An Examination of Satisfactory Academic Progress Requirements in the Nation's Largest Need-Based Aid Program," *Research in Higher Education*, 57(8), 943–67.

Scott-Clayton, J., and V. Minaya (2014). "Should Student Employment Be Subsidized? Conditional Counterfactuals and the Outcomes of Work-Study Participation," Working Paper. New York: Center for Analysis of Postsecondary Education and Employment, Teachers College, Columbia University.

Scott-Clayton, J. and L. Schudde (2016). "Performance Standards in Need-Based Student Aid," Working Paper No. 22713. Cambridge: National Bureau of Economic Research. Scrivener, S., M. J. Weiss, A. Ratledge, T. Rudd, C. Sommo, and H. Fresques (2015). *Doubling Graduation Rates: Three-Year Effects of CUNY's Accelerated Study in Associate Programs* (*ASAP*) for Developmental Education Students, New York: MDRC.

Shafir, E. and S. Mullainathan (2013). *Scarcity: Why Having Too Little Means So Much*, New York: Henry Holt.

Stinebrickner R. and T. R. Stinebrickner (2003). "Working During School and Academic Performance," *Journal of Labor Economics*, 21(2), 473–91. U.S. Department of Education, National Center for Education Statistics (2003). *How Families of Low- and Middle-Income Undergraduates Pay for College: Full-Time Dependent Students in 1999–2000.* NCES 2003-162. (Washington, D.C.: U.S. Department of Education).

van der Klaauw, W. (2002). "Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression-Discontinuity Approach," *International Economic Review*, 43(4), 1249–87.

Appendix A: Qualitative Methodology

All interviews described in this report took place on the Rutgers-Camden campus during the fall 2017 term. Each interview was recorded with the permission of the participants. Once transcribed, all audio recordings were deleted. All interviews were confidential, with any identifying information stored electronically in a restricted-access folder on a Federal Reserve Bank of Philadelphia server. This study was conducted in accordance with the procedures approved by the Rutgers University Institutional Review Board. The interview guide is available upon request.

Sampling and Recruitment

Of the 20 students interviewed by King and Divringi (2017) in the fall of 2016, 14 volunteered to participate in a second round of interviews in the fall of 2017. To recruit additional interviewees, researchers used a stratified sampling method. Rutgers–Camden staff provided names, phone numbers, e-mail addresses, and income group membership for all first-year program participants 18 years or older. Students were randomly selected from this list and contacted by phone to request and schedule an interview. A total of 50 students were called, including the 21 participants in the fall 2016 interviews and focus groups. Twenty-three students agreed to be interviewed, and 22 interviews were ultimately completed. Of the 22 students interviewed in the fall of 2017, one was no longer enrolled at Rutgers–Camden, and another had lost eligibility for Bridging the Gap by the time of the interview. Of the remaining 20, eight were from the lower-income group and 12 were from the middle-income group. A \$50 gift card that could be used at on-campus eateries and at the campus bookstore was offered by Rutgers–Camden as an incentive to every student who participated in the individual interviews. Interviews were scheduled for one hour, with durations ranging from 20 to 65 minutes.

Analysis

Researchers used the qualitative data analysis software MAXQDA to analyze each interview transcript. The code book was established based on a priori research questions and themes identified through an initial reading of a handful of transcripts. Seven of the 22 interviews were coded independently by research team members and analyzed for intercoder agreement. Set at a 20 percent tolerance rate, the intercoder agreement statistic varied between 77 percent and 98 percent for the seven transcripts that were double-coded.

Appendix B: Data Tables

Table 1. Predicting the Likelihood of Enrolling for Admitted Students from New Jersey (Odds Ratios and Standard Errors of Coefficients from Binary Logistic Regression Models)

	Full Sample	≤\$60,000	\$60,001– 100,000	>\$100,000	Female	Male
0010.0.1	1.267***	1.486***	1.104	1.173	1.294***	1.234**
2016 Conort	(0.068)	(0.102)	(0.160)	(0.127)	(0.091)	(0.104)
Academic Characteristics						
	0.544***	0.455***	0.567***	0.629***	0.714***	0.435***
High School GPA	(0.081)	(0.123)	(0.187)	(0.154)	(0.119)	(0.121)
SAT Score (100s)	0.819***	0.799***	0.812***	0.814***	0.796***	0.834***
SAT SCOLE (1008)	(0.019)	(0.029)	(0.043)	(0.035)	(0.026)	(0.028)
Other Characteristics						
AGI (≤\$60,000 Is Reference)						
#00.004_400.000	1.083				1.022	1.172
\$60,001-100,000	(0.095)				(0.124)	(0.147)
- ¢100.000	0.692***				0.707***	0.680***
>\$100,000	(0.087)				(0.119)	(0.130)
Not Poportod	0.146***				0.113***	0.179***
Not Reported	(0.141)				(0.217)	(0.190)
Race/Ethnicity (White, not Latino Is Refere	ence)					
African American, not Lating	0.643***	0.732**	0.546***	0.514***	0.643***	0.632***
Amcan American, not Latino	(0.104)	(0.148)	(0.230)	(0.248)	(0.131)	(0.177)
Asian not Lating	1.011	0.992	0.797	1.286	1.024	1.010
	(0.103)	(0.159)	(0.227)	(0.189)	(0.139)	(0.153)
Other Bace, not Latino	1.254	1.278	0.801	1.240	1.128	1.498
	(0.166)	(0.263)	(0.433)	(0.286)	(0.216)	(0.261)
Latino, any Bace	0.734***	0.731**	0.696	0.769	0.661***	0.864
	(0.099)	(0.140)	(0.229)	(0.228)	(0.132)	(0.151)
Resident of Camden, Burlington, or	7.358***	8.887***	5.997***	6.334***	7.458***	7.203***
Gloucester County	(0.073)	(0.106)	(0.165)	(0.147)	(0.096)	(0.112)
Constant	20.201***	43.396***	28.679***	10.579***	11.894***	32.016***
	(0.340)	(0.541)	(0.783)	(0.599)	(0.475)	(0.495)
Ubservations	8,008	3,007	1,168	2,164	4,687	3,321
Correctly Classified	84.1%	80.8%	77.9%	83.2%	84.6%	83.5%
Cox & Snell R ²	0.188	0.211	0.175	0.144	0.188	0.191
-2 Log Likelihood	5672.638	2464.718	1042.651	1640.431	3213.583	2441.819
Likelihood Ratio X ²	1668.779	712.842	225.164	336.192	977.093	704.951

*** p < 0.01, ** p < 0.05, * p < 0.10

Appendix B: Data Tables

Table 1. (cont'd) Predicting the Likelihood of Enrolling for Admitted Students from New Jersey (Odds Ratios and Standard Errors of Coefficients from Binary Logistic Regression Models)

	White	African American	Asian	Latino	Parent Attended College	First Generation
2016 Cohort	1.210*	1.545**	1.168	1.337*	1.314***	1.167
	(0.100)	(0.171)	(0.183)	(0.164)	(0.080)	(0.137)
Academic Characteristics						
High School CPA	0.678***	0.353***	0.617**	0.421***	0.586***	0.488***
	(0.123)	(0.206)	(0.210)	(0.197)	(0.096)	(0.160)
SAT Score (100s)	0.810***	0.857***	0.809***	0.805***	0.810***	0.827***
3AT 3COTE (1003)	(0.028)	(0.052)	(0.041)	(0.049)	(0.022)	(0.039)
Other Characteristics						
AGI (≤\$60,000 Is Reference)						
\$60,001,100,000	1.185	0.897	1.047	1.216	1.147	0.849
\$60,001-100,000	(0.143)	(0.221)	(0.241)	(0.238)	(0.110)	(0.209)
>\$100.000	0.712***	0.479***	1.054	0.673	0.676***	0.928
>\$100,000	(0.122)	(0.263)	(0.219)	(0.254)	(0.100)	(0.240)
Not Reported	0.164***	0.036***	0.166***	0.156***	0.156***	0.093***
Not Reported	(0.183)	(0.728)	(0.394)	(0.415)	(0.155)	(0.403)
Race/Ethnicity (White, not Latino Is Refere	ence)					
African American, not Latino					0.610***	0.796
	_				(0.119)	(0.226)
Asian not Latino					0.932	1.131
	_				(0.121)	(0.209)
Other Bace not Latino					1.243	1.249
					(0.181)	(0.410)
Latino, any Bace					0.776**	0.760
					(0.124)	(0.180)
Resident of Camden, Burlington, or	5.346***	5.943***	10.225***	13.418***	6.390***	10.495***
Gloucester County	(0.112)	(0.172)	(0.186)	(0.167)	(0.086)	(0.145)
Constant	13.975***	33.230***	12.076***	30.870***	20.237***	18.834***
	(0.481)	(0.882)	(0.835)	(0.871)	(0.393)	(0.721)
Observations	3,239	1,267	1,548	1,647	6,007	1,941
Correctly Classified	81.2%	84.5%	88.9%	87.1%	84.8%	82.6%
Cox & Snell R ²	0.173	0.169	0.187	0.235	0.173	0.236
-2 Log Likelihood	2590.112	907.065	862.961	1002.565	4181.752	1419.954
Likelihood Ratio X ²	615.688	234.120	320.914	440.656	1139.667	522.053

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: Depending on the subgroup, anywhere from 0.6 to 3.0 percent of admitted students are excluded because they are missing data used to control for high school GPA, SAT score, or race/ethnicity. In cases in which the SAT score was missing but the ACT score was present, the College Board's ACT to SAT concordance tables were used to impute the SAT score.

Table 2. Descriptive Statistics

	Eligible Lower-Income		Eligible Middle-Income		No Tuition Gap		Not Eligible	
	2014-2015	2016	2014–2015	2016	2014-2015	2016	2014-2015	2016
Academic Characteristics								
High School GPA	3.37 (0.39)	3.38 (0.43)	3.40 (0.44)	3.42 (0.43)	3.34 (0.49)	3.33 (0.45)	3.40 (0.48)	3.39 (0.48)
SAT Score	1532 (170)	1489 (192)	1575 (184)	1516 (198)	1432 (183)	1431 (194)	1607 (217)	1592 (190)
Receipt of Merit Aid	33.6%	35.0%	41.8%	43.1%	29.1%	25.3%	48.3%	44.8%
Enrolled in Remedi- al Class	58.0%	59.9%	53.6%	54.1%	66.5%	61.9%	49.0%	45.4%
College								
Arts & Sciences	56.5%	69.3%	62.7%	63.3%	67.0%	75.8%	55.1%	55.2%
Business	26.0%	22.6%	17.0%	24.8%	22.2%	14.9%	26.5%	25.3%
Nursing	17.6%	8.0%	20.3%	11.9%	10.9%	9.3%	18.4%	19.6%
Other Characteristics								
AGI	\$35,538 (\$17,715)	\$38,257 (\$17,292)	\$79,649 (\$12,099)	\$80,026 (\$10,657)	\$23,759 (\$16,149)	\$24,049 (\$15,494)	\$138,364 (\$55,411)	\$140,458 (\$52,548)
Race/Ethnicity								
White, not Latino	44.6%	46.3%	51.7%	58.3%	18.0%	22.0%	61.4%	58.8%
African American, not Latino	12.3%	17.6%	15.9%	11.1%	24.1%	28.3%	7.9%	7.7%
Asian, not Latino	15.4%	8.1%	13.9%	13.0%	22.4%	11.5%	15.9%	18.0%
Other Race, not Latino	6.9%	8.8%	3.3%	5.6%	3.5%	3.7%	5.5%	5.2%
Latino, any Race	20.8%	19.1%	15.2%	12.0%	32.0%	34.6%	9.3%	10.3%
Financial Aid								
Federal, State, and Institutional Need- Based Aid (excl. Bridging the Gap)	\$7,921 (\$4,177)	\$7,851 (\$4,151)	\$2,600 (\$3,205)	\$3,037 (\$3,385)	\$16,936 (\$2,205)	\$17,327 (\$2,081)	\$700 (\$2,622)	\$1,074 (\$3,535)
Institutional Merit Aid	\$1,029 (\$1,763)	\$979 (\$1,891)	\$1,313 (\$1,828)	\$1,195 (\$1,534)	\$958 (\$2,111)	\$680 (\$1,344)	\$2,260 (\$3,548)	\$1,678 (\$2,649)
Total Aid (excl. Bridging the Gap)	\$8,950 (\$4,506)	\$8,830 (\$4,250)	\$3,912 (\$3,796)	\$4,232 (\$3,668)	\$17,894 (\$2,618)	\$18,007 (\$2,142)	\$2,960 (\$4,477)	\$2,751 (\$4,462)
Observations	101	107	150	100	220	104	204	104
Observations	131	137	153	109	230	194	294	194

Note: For continuous variables, means are shown with standard deviations below them in parentheses. A small percentage of students are missing information on race/ethnicity (1 percent), SAT score (1 percent), and high school GPA (3 percent), and 16 percent of students in the Not Eligible category are missing AGI. AGI is bottom-coded at \$0 and top-coded at the 99th percentile for enrolled students. The college reported in the most recent term of enrollment is used to assign students to one of three colleges: Arts & Sciences, Business, or Nursing. Within student categories, the only significant differences (p < 0.10) between the 2016 Cohort and the 2014–2015 Cohorts are: SAT score (Eligible Lower-Income and Eligible Middle-Income); college of enrollment (Eligible Lower-Income); race/ethnicity (No Tuition Gap); total need-based aid (No Tuition Gap); and institutional merit aid (Not Eligible).

Appendix B: Data Tables

Table 3. Predicting Academic Outcomes for Lower-Income Students (2014–2016) in Year One using a Difference-in-Differences Approach (Coefficients and Robust Standard Errors from OLS Regression Models)

	Credit Hours Completed	Cumulative GPA	Probability of Meeting Program Requirements and Reenrolling in Year Two			
2010 Cabart	2.385***	0.210***	0.153***			
2016 Conort	(0.787)	(0.076)	(0.045)			
Tuition Con	-1.484	-0.153	-0.067			
	(1.016)	(0.103)	(0.054)			
2016 Cohort * Tuition Con	-0.849	-0.042	0.010			
	(1.359) (0.128)		(0.074)			
Academic Characteristics						
	4.077***	0.641***	0.183***			
High School GPA	(0.826)	(0.083)	(0.045)			
Passint of Marit Aid	0.828	0.281***	0.084*			
	(0.744)	(0.071)	(0.044)			
Enrolled in Remedial Class	-2.466***	-0.257***	-0.139***			
	(0.717)	(0.066)	(0.041)			
College (Arts & Sciences Is Reference)						
	0.908	0.196***	0.062			
Business	(0.772)	(0.073)	(0.046)			
Nurring	2.533**	0.252***	0.307***			
Nursing	(0.981)	(0.091)	(0.057)			
Other Characteristics						
	0.480**	0.046**	0.018			
AGI (\$10,000s)	(0.207) (0.020)		(0.012)			
Race/Ethnicity (White, not Latino Is Reference)						
	-2.479**	-0.517***	-0.152***			
African American, not Latino	(0.954)	(0.091)	(0.052)			
	1.782*	0.081	0.046			
Asian, not Latino	(0.919)	(0.092)	(0.063)			
	-2.597*	-0.407***	-0.071			
Other Race, not Latino	(1.466)	(0.136)	(0.079)			
	-1.627*	-0.388***	-0.105**			
Launo, any nace	(0.877)	(0.084)	(0.050)			
Constant	12.872***	0.619**	-0.176			
	(2.992)	(0.304)	(0.159)			
Observations	648	645	649			
R ²	0.180	0.345	0.198			

*** p < 0.01, ** p < 0.05, * p < 0.10

Note: The sample includes all lower-income students from 2014 through 2016 who would have qualified for the Bridging the Gap program based on AGI (<\$60,000), state of residence, citizenship, and a full-time course load. The 2016 Cohort variable distinguishes eligible students in the 2016 cohort from those in

the preceding two years. The Tuition Gap variable represents the effect of having tuition and campus fee costs in excess of need-based aid (excluding Bridging the Gap in 2016); this variable identifies all students with a tuition gap, irrespective of the receipt of a Bridging the Gap award. The interaction of the 2016 Cohort and the Tuition Gap variables isolates the effect of Bridging the Gap eligibility in 2016. Credit hours completed and cumulative GPA are defined in Tables 4 and 6, and program requirements are defined as completing 30 credit hours and attaining at least a 2.0 cumulative GPA. Of the 683 lower-income students included in the study, 34 students (5 percent) are excluded from the models primarily because the students are missing data used to control for high school GPA or race/ethnicity, one student who transferred to another Rutgers University campus in the spring is excluded from the credit hours completed model, and three additional students are excluded from the cumulative GPA model because their GPA could not be calculated. AGI is bottom-coded at \$0. The college reported in the most recent term of enrollment is used to assign students to one of three colleges: Arts & Sciences, Business, or Nursing. Models were run with high school GPA as a categorical variable, and the significance levels of the 2016 Cohort variable and its interaction with the Tuition Gap variable were unchanged. We report the results of a linear probability model to explore the likelihood of meeting program requirements and reenrolling at Rutgers–Camden; results from a binary logistic regression model are qualitatively similar for the 2016 Cohort variable and its interaction with the Tuition Gap variable and are available upon request.



Federal Reserve Bank of Philadelphia