

Completion Grants: An Evaluation of Experimental Findings on College Attainment

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EXECUTIVE SUMMARY

Increasing equity in graduation rates and reducing time-to-degree are central concerns for colleges and universities around the country. With the price of college higher than ever, difficulty paying for college is a reality for most students. Financial shortfalls in the final years of college, created by escalating costs and/or declining financial aid, lead many students to leave college without degrees in hand. Completion grants, an increasingly popular approach to improving college completion, provide additional financial support to students struggling with financial hurdles during the final stretch of their degree program. While there is descriptive and anecdotal evidence that these programs may have positive impacts, this study offers the first analysis of the causal impact of completion grants on academic outcomes at 11 broad- and open-access universities. We find no evidence of positive impacts on academic outcomes for students in the aggregate or for students parsed by identifiable subgroups. Standard completion grant programs may be exacerbating inequality, not ameliorating it.

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INTRODUCTION

With college and universities across the United States enrolling greater numbers and more diverse cohorts of students, America's postsecondary system is increasingly focused on how to equitably serve students. While the number of degree earners and rates of college completion have steadily increased in the U.S. over the past decade, particularly at four-year institutions (from about 1.24 million graduates in 2001 to about 1.98 million graduates in 2018), disparities in graduation rates persist for low-income and underrepresented racial minority subgroups (NCES, 2020). Moreover, time-to-degree extends well beyond four years across the nation and, as with other outcomes, time-to-degree is longer for many structurally marginalized groups (NCES, 2021). These gaps in student success have a direct and negative impact on underserved students and their families, particularly students who progress several years into their academic journeys, accumulating significant debt burdens, but do not complete their degrees due to unmet financial need. As Carey (2004) argued in *A Matter of Degrees*, the true ramifications of these opportunity gaps play out across our economy, our society, and over generations—to the detriment of us all.

Seeking to address these issues, postsecondary institutions have proliferated a range of strategies aimed at understanding and meeting the changing needs of their students. Noting the need for “just in time” funding that a growing number of students needed as they progressed in their academic journeys, completion grants arose in the mid-2010s as one such financial aid strategy. Their corresponding theory of change was simple: aimed at students near degree completion but with a small amount of unmet financial need, these small dollar grants could prevent students from stopping or dropping out. With a completion grant, students facing unmet need late in their college careers could complete their degree, thusly increasing their success, decreasing their time-to-degree and resulting debt burden, and meaningfully contributing to their communities. But how effective is this strategy in practice?

Some of these programs, such as Georgia State University's (GSU) “retention grants,” report positive outcomes (Ascendium, 2019; Gumbel, 2020; Renick, 2016). This might mean that completion grants are effective, boosting outcomes, and generating a

positive return on investment. Alternatively, it might mean that institutions are providing completion grants to students who—even absent the new support—have a strong likelihood of graduation. After all, even before receiving a completion grant, these students have made substantial progress in college, indicating stamina, and staying power.

The question of whether completion grants are effective at independently improving graduation rates and reducing time-to-degree is important, especially for institutions with limited resources. Answering that question requires understanding what the outcomes of grant recipients would be if they *didn't* receive completion grant aid.

Using a randomized-control trial design (RCT), with support from the Institute for Education Sciences and a partnership with the Association of Public and Land-grant Universities (APLU), this study examines the causal impact of completion grants for students nearing completion across 11 public institutions. Specifically, we test the efficacy of a completion grant with an average grant value of approximately \$1,000 distributed to more than 14,000 students. We estimate both average and heterogeneous impacts on completion and time-to-degree. The results reveal no evidence that completion grants reduce time-to-degree or improve graduation rates.

Most importantly, this study's large sample size offers the statistical power to rule out even modest effect sizes of completion grants. We can thus confidently state that, in settings like this study, completion grants have no detectable (causal) positive impact on student outcomes. At best, this implies that financial aid models like the one used in this study represent an inefficient use of funds. When compared to anecdotal and descriptive evidence indicating positive effects, our results suggest that institutions are allocating completion grants to students who are already more likely to persist through college and complete their degrees. Given what we know about the role that social background plays in the ability to navigate complicated bureaucracies such as the modern financial aid system (Herd & Moynihan, 2018), typical completion grant programs may increase already large disparities among first generation and underrepresented minority students.

Completion Challenges

With the average completion rate of postsecondary institutions hovering at 60% (Causey et al., 2020) higher education institutions are increasingly looking for ways to support students *throughout* college and to degree completion. One factor influencing degree completion is students' ability to cover expenses during college. Many studies show that financial barriers have a negative impact on student achievement, retention, and time-to-degree (e.g., Anderson et al., 2020; Bettinger et al., 2019; Broton et al., 2016; Castleman et al., 2018; Goldrick-Rab et al., 2016). Students often stop out of college when the total cost of attendance (COA) in addition to the cost of day-to-day life becomes untenable (CLASP, 2018; Guarntz, 2015; Urban Institute, 2021; Terriquez, 2015).

While need-based aid plays a large role in college affordability, its value diminishes throughout college. Annual tuition increases and additional fees associated with higher-level courses (a problem particularly salient for students in STEM fields) cause students' costs to increase (Goldrick-Rab et al., 2021; Ma et al., 2020; NCES, 2018). Additionally, courses grow more difficult, threatening students' ability to maintain Satisfactory Academic Progress (SAP) which is a requirement for most forms of financial aid (Schudde & Scott-Clayton, 2016). Finally, as the average student requires more than four years to graduate (NCES 2021), costs of attendance continue to compound at the same time as students' remaining available aid dollars are depleted (Abdul-Alim 2016; APLU 2016; Katsinas et al., 2013).

Completion grants may address some of these common challenges. They may prevent the common pattern of students taking a semester off while they wait for funds replenish. The provision of additional funds may also improve student academic progress (as measured by course completion and GPA) by reducing students' need to work during their college career and giving students additional time to devote to their studies. Given the additional demands on student finances as they near the end of their college tenure, a small infusion of funds may be the difference between remaining in college and dropping out.

In addition, completion grants may impact students differently depending on their financial or academic circumstances. For example, students with low levels of unmet need might benefit more from completion grants as the extra funds are more likely to fully resolve their financial challenges. Similarly, completion grants may have a greater impact on the outcomes of students who have demonstrated strong academic achievement (for instance, students with higher GPAs, more accumulated credits, or already on-track to graduate on-time) before grant receipt.

Completion Grants

A 2016 survey by the National Association of Student Personnel Administrators (NASPA) reveals that almost one-third of institutions offered some type of program aimed to address the common challenges discussed above. Many were focused on near-completers—students holding almost enough credits to complete their degree—though the majority were not titled “completion grants” and were informal programs funded with institutional dollars (Kruger et al., 2016). More recently, the University Innovation Alliance (UIA) engaged in a multi-year completion grant program with 11 public institutions to understand the common successes and hurdles in administering these grants. As with our study, institutional barriers often impacted the way in which the programs were designed and implemented (Ascendium, 2019; UIA, 2021).

GSU, one of the UIA partner institutions, has the most well-known completion grants program. GSU’s [Panther Grants](#) or “retention grants” are explicitly aimed at retaining students through completion. Like other programs, this program was started as an emergency aid-like fund for students identified at risk of dropping out due to unpaid balances. GSU then expanded the program and showed graduation rates for participants at around 86% (GSU, 2018). Because GSU relied on existing personnel and processes, the program was also cost effective (Gumbel, 2020; Renick, 2016). However, while these results are encouraging, they are descriptive in nature, primarily examining outcomes of students who received the grants and not examining similar

students who did not receive grants.¹ Additionally, these results may not generalize to completion grant programs at other institutions that do not closely match GSU in terms of its institutional landscape, demographic composition, or approach to identifying students eligible for the program.

Philanthropic and business stakeholders are also deeply invested in improving college completion and time-to-degree. In 2015, the Lumina Foundation and Ascendium Education Group (Ascendium) funded a project headed by the APLU and the Coalition of Urban Serving Universities (USU), which created “completion grants” programs across nine universities. The initiative began with a workshop at APLU’s annual meeting in November 2015 where four universities detailed their “micro-grant” programs. Subsequently, APLU opened a request for proposals which provided participating institutions with \$50,000 to initiate or scale-up existing micro-grant programs between 2016 and 2018. Lumina Foundation required that these programs scale over the course of the grant, so that a percentage of the eligible population be served in the last year of the grant. Knowing these institutions would not have the funds to serve all students with unmet need, APLU and USU focused the program on “near completers” and thereby coined the phrase “completion grants.” These grants ranged from \$500 to \$1,500 and were aimed at currently enrolled students within 30 credit hours of degree completion with “genuine unmet need and an unpaid university balance.” Overall, more than 1,200 grants were distributed with 93% of recipients completing their degree or remaining enrolled one year from award. For example, University of North Carolina-Charlotte reported great success with their Gold Rush grants showing 95% of recipients graduated or remained enrolled toward graduation (APLU, 2016).

In 2017, the Bill and Melinda Gates Foundation invested approximately \$4 million in another project on completion grants run by the UIA and also involving a subset of APLU institutions. As of spring 2019, Ascendium reported that this initiative was also succeeding, with between 79% and 85% of the awardees from the 2017–18 year having graduated or remained enrolled (Ascendium, 2019).

¹ Ithaca S&R is now leading a quasi-experimental evaluation of this program to be published in December 2021.

While each of these programs' outcomes suggest that completion grants might be an effective strategy, neither were tested in a comparative framework that would allow for causal attribution. At a minimum, the results may not be generalizable as these institutions were early adopters of an innovative program—a factor that often is accompanied by other institutionally unique practices. For example, these institutions may have specific administrative structures, such as advanced student tracking systems or larger-than-average numbers of staff focused on student aid and assistance, which make such an investment in students cost-effective. It is likely that institutions with higher levels of disadvantaged students or lower levels of federal and state investment, for example, may have different results than similar grant programs due to the administrative demands of such a program (Goldrick-Rab et al., 2021).

Additionally, there may be selection bias in these results which affects the outcomes. Specifically, these outcomes may reflect that these grants targeted students already likely to graduate. Students nearing completion have already successfully navigated many administrative and academic challenges to reach this stage; they may be more likely to complete college whether or not they receive supplemental support from a completion grant.

Although we know of no rigorous studies of interventions aimed at near-completers, one study of financial aid benefits produced impacts large enough to be detectable with our proposed sample sizes. Castleman and Long (2016) find that the Florida Student Access Grant, which gave students \$1,300 annually, improved six-year completion by 4.6 percentage points (22%). Anderson et al. (2020) show weak evidence that students who received a \$3,500 annual scholarship earned bachelor's degrees faster, though the effect trended in a negative direction after six years. There is reason to believe that completion grants might have larger impacts than both studies given their large non-experimental impacts. In both Goldrick-Rab et al. (2016) and Castleman and Long (2016) there is also causal and quasi-experimental evidence that financial aid can have a positive impact on student completion and credit accumulation. Alternatively, the amount of aid and the timing of the awards are different than those examined in this study which may attenuate the impact found here. Specifically, in the above studies, the

amount of aid was larger than in this study and awards were distributed at different times within the academic year.

This paper provides evidence as to if, and how, completion grants may impact students' degree attainment and the quality and speed of students' academic progress.

Additionally, capitalizing on a large sample, we provide a heterogeneity analysis of these impacts to identify potential variation in the impacts between student subgroups.

INTERVENTION AND SETTING

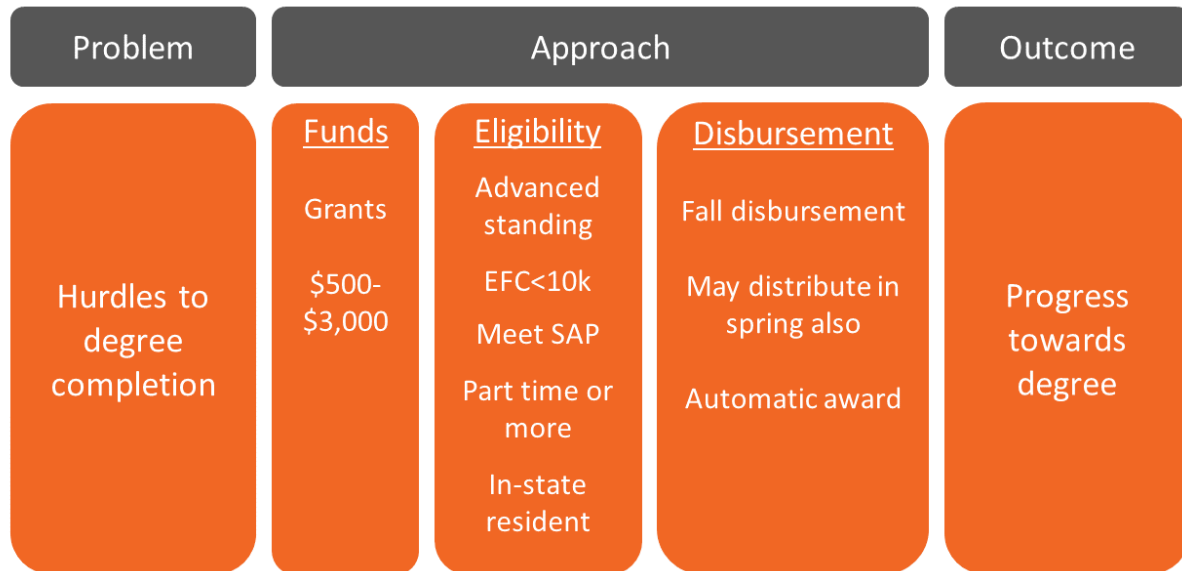
This study took place in two phases. Phase one included a learning year wherein we explored how institutional partners were implementing an initial completion grant model. About half of the participating institutions were a part of APLU and USU's 2016 completion grant program. Within this learning year, we conducted site visits to build trust with institutional partners. We also conducted an in-depth analysis of the ways in which program implementation resulted in administrative burdens for students and for institutions (Goldrick-Rab et al., 2021). From the learning year, a list of commonalities in programing across the participating institutions was identified, as well as a list of areas of divergence.² Subsequently, we convened all the partners to create a common model based on the findings and each of the participating institutions agreed to implement this model while conducting randomized trials.

² Many (45%) of the institutions participating in the study also participated in a learning phase the previous year. This phase of the study was a learning phase in which the authors explored and examined the implementation of already existing completion grant programs. Three of the pilot phase institutions participated not only in this convening but also in a pilot RCT during the learning year. This pilot examined efficacy of the completion grants in their original form at these three institutions as well as piloted data collection for survey and administrative data. In addition to the institutions that participated in the initial year, we added another three institutions to the efficacy phase of the study to ensure adequate sample to determine effects.

Intervention

Though there was some slight variation in program implementation across institutions, the common model held five core components within which institutions agreed to follow similar processes: money, messaging, requirements, timing, and eligibility.

FIGURE 1. COMPLETION GRANTS PROGRAM MODEL



The practitioners came to consensus that completion grants should not exceed the COA and that these small grants were grants, not loans—no repayment required.³ Institutions agreed to use email messaging provided by the research team to notify students of their award and agreed that students could be encouraged, but not required, to complete a list of additional activities.⁴ Eligibility requirements included a number of specific details with the most important criterion being that students should be within 25% of the credits required for degree completion (Figure 1). Broadly, the common model required the

³ One institution conducted the pilot study using a loan approach to the completion funds. They agreed to use grants for the fall 2018 term to be part of the study. However, subsequent site visits suggest they may have reverted to the loan model without notifying researchers at the time. This institution also awarded funds substantially later than any other institution and will be excluded from some analyses due to these variations from the common model.

⁴ For example, several of the institutions had previously required academic advising meetings to receive the grant. While these were no longer required, they were still available to students in the treatment and control groups if requested.

student to have filed a Free Application for Federal Student Aid (FAFSA), be meeting SAP, be an in-state resident, and be enrolled at least part-time. Students were not required to have taken out loans preceding receipt of the grant, and students' expected family contribution (EFC) could be up to \$10,000 or approximately 200% of Pell eligibility.

All institutions implemented this model for one academic year (2018–19) and then followed the eligible students for two years (until 2020–21) to understand the impact of the completion grant program on academic outcomes. The program model strongly encouraged institutions to complete the treatment period in the fall but allowed institutions to serve students in the spring if necessary.⁵ We encouraged distribution of the grants as early in the fall term as possible so that students could use the funds to cover small tuition bills. We also required the grants be automatically awarded (with no student acknowledgement necessary), thereby eliminating an administrative hurdle that could amplify existing inequalities.

Institutions committed to award an average of 200 completion grants, though some institutions awarded more or less depending on their ability to fiscally support these grants. Institutions identified eligible students between July and August of 2018. The authors then guided institutions through a randomization of students blocked by Pell grant eligibility.⁶ Baseline equivalence was assessed at this time within-institution using available data. Treatment students were awarded the completion grant on average two weeks before to two weeks after the start of the fall 2018 term.⁷

⁵ Two institutions offered the grants in spring 2019 due to attrition in the initially eligible sample which allowed them extra funds to disburse – a new sample was pulled for spring 2019 following the eligibility criteria to receive the remaining funds. Two other institutions elected to distribute aid across the two terms as opposed to providing a lump sum in fall 2018.

⁶ Randomization was blocked by Pell eligibility because it is a proxy for need and strongly correlated with completion.

⁷ One institution was unable to identify or award grants following this timeline due to their administrative structure. This institution completed this process later in the fall term.

Setting

The 11 participating four-year broad or open access research institutions serve an average of 25,000 undergraduate students with a range of between approximately 8,000 and 58,000 students. The average four-year graduation rate is 30%. As shown below, participating institutions, had, on average, an admissions rate of approximately 66%, with no institution's rate falling below 50%. Over half of participating institutions are majority non-White.

TABLE 1. INSTITUTIONAL CHARACTERISTICS

Average	
Total undergraduates	25,273
% Non-White	53%
% In-State	53%
Academics	
Four-year bachelor's degree completion rate	30%
Six-year bachelor's degree completion rate	56%
Admissions rate	66%
Region	
South	45%
Southwest	18%
Midwest	9%
Pacific Northwest	9%
East	9%
Other	10%
Urbanicity	
Rural	0%
Suburb	9%
Small city	0%
Midsized city	27%
Large city	63%
Financials	
Tuition and fees (in-state)	\$9,429
Cost of attendance (in-state)	\$25,666
% Pell*	40%
% Federal student loans*	49%

Source | Where * is listed data is from 2015-16 College Navigator website; otherwise, data is drawn from fall 2016 College Navigator data.

Institutions from across the United States participated in this study, with the majority in the South (approximately 45%) and the next largest group from the Southwest. Over 60% of the institutions are located in urban areas. There are no rural institutions in this sample, and the remainder are in suburban areas or mid-sized cities. Almost every institution has over half of its students attending from within the state where students paid, on average, approximately \$9,500 annually for tuition and fees and COA averaged about \$25,000. Approximately 40% of their students were Pell eligible and nearly half used federal loans.

The students were identified by each institution based on the program eligibility criteria. This resulted in a total sample of 14,226 eligible students, 16% of whom were randomly assigned to receive a completion grant and 84% of whom were randomly assigned to not receive the grant. The average award to eligible students was approximately \$1,200, though awards varied across institutions and ranged from \$223 to \$3,000 dollars.

TABLE 2. COMPLETION GRANT DISBURSEMENT ACROSS INSTITUTIONS

	Total Eligible	Awarded Completion Grant		Completion Grant Award (\$)	
		Percent Served	Total Students	Average	Maximum
Overall	14,226	16	2,231	1,232	3,000
Institution					
Arizona State University	2,446	17	410	985	1,000
Florida International University	832	12	100	1,000	1,000
Portland State University	1,369	9	125	1,586	2,000
University of Illinois at Chicago	3,223	5	146	499	500
University of Memphis	342	58	198	2,995	3,000
Florida State University	2,082	9	196	1,000	1,000
Indiana University Purdue University Indianapolis	1,010	20	200	995	1,000
University of North Carolina at Charlotte	1,068	20	210	1,500	1,500
University of Colorado Denver	1,099	18	199	1,000	1,000
Rutgers University - Newark	183	28	51	1,500	1,500
Virginia Commonwealth University	572	69	396	993	1,000

Source | Data are obtained from institution records for this study.

Notes | Award amount could not exceed student's unmet need, therefore, a small number of students in the treatment group received award amounts of \$0 (contact authors for details). Percent who received a completion grant is of total eligible students.

Data

We supported participating institutions in examining their data on eligible students to support effective randomization. Preceding treatment, institutions provided us with students' demographic and financial aid data (see Table 3 for more detail). On an annual basis for the subsequent three years (i.e., 150% of normal time to graduation for any students that might have been enrolled part-time), participating institutions provided APLU with FAFSA and administrative data on academic outcomes for the eligible sample. Specific data points collected included students' GPA, persistence from semester to semester, and degree completion. To examine the effects of the common

completion grant model, we reviewed and explored these data for four terms of follow-up after treatment. A subsequent paper (issued in mid-2022) will include additional data.

Analytic Approach

This paper provides an examination of the impacts of completion grants on academic outcomes across three years. Using Equation 1, we estimate the impact of treatment on the outcomes described in the data section below. This analysis is effectively a treatment-on-the-treated approach as we were able to ensure that nearly all of those randomly selected to the treatment group received treatment.

$$(E1) \quad y_i = \alpha + \beta * \text{Treatment}_i + X_i + I_i + \varepsilon_i$$

To identify causal impacts of completion grants, Equation (1) will be estimated: (1) where y_i represents an outcome for student i ; Treatment_i is an indicator variable for whether a student was assigned to the treatment group (i.e., student was awarded a completion grant); X_i is a vector of additional student-level covariates included when not equivalent at baseline (see footnote below); I_i represents institution-level fixed effects; and ε_i is a term for student-specific random error. In Equation (1), β represents the treatment impact, the average improvement in outcome y_i for the treatment group relative to the control group. If completion grants are effective, estimates of β are expected to be positive, statistically significant, and substantively important. We test multiple variations of this model as shown in Table 3 below:

TABLE 3. ANALYSES EXPLORED

Analysis Type	Impacts?
Linear/logistic regression with college fixed effects (overall)	No
Linear/logistic regression by college	No
Hierarchical Linear Models controlling for institutional characteristics	No
Heterogeneity analysis by:	
Race	No
Gender	No
Unmet need	No
Pell eligibility	No

BASELINE EQUIVALENCY

At the point of randomization, baseline equivalence was assessed for each institution's sample using administrative data to identify student eligibility and balance; all decisions were approved based on a two-party confirmation. Baseline equivalence was also assessed post-hoc with a full data sample and pooled across institutions as shown in Table 4 below.

TABLE 4. BASELINE COMPARISON OF STUDENTS BY TREATMENT STATUS

Student Characteristics		Treatment Status			Difference
		All	Completion Grant	No Completion Grant	
Variables Used in Randomization					
%	Average percentage of degree credits completed	96	96	96	0.00
	Enrolled at full-time status	81	80	81	0.03
	Took out student loans	58	63	58	0.14
	Pell eligible	86	85	86	0.02
\$	Average unmet need	6,183	6,108	6,197	0.02
	Average EFC	1,728	1,775	1,719	0.02
Additional Demographic Information					
%	Latinx	28	23	29	0.21
	Asian (non-southeastern)	9	7	9	0.19
	Southeastern Asian	3	3	3	0.05
	American Indian	1	1	1	0.10
	Black or African American	13	17	12	0.24
	White	41	43	41	0.17
	Female	55	59	55	0.17
	Independent on FAFSA	48	52	47	0.17
\$	Average family income 18-19	23,016	26,469	22,373	0.17

Source | Data are obtained from institution's administrative records.

Notes | N=14,226 (completion grant group=2,231, no completion grant group=11,995). Effect sizes are calculated according to What Works Clearinghouse standards, only for variables on which students were randomized. Family income is a combination of student income and parent income as reported on the FAFSA. Percent of degree credits completed refers to the percentage of needed credits to graduate from the university attended already completed at the time of randomization. Percent of students who took out

student loans refers to the percent of students who took out any kind of federally reported student loan of any amount. Independent on the FAFSA refers to the percent of students who have been determined to be independent for FAFSA filing purposes, and therefore do not need to report parental income. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

Across both Pell and non-Pell eligible students, our randomization satisfies the baseline equivalence requirements according to What Works Clearinghouse (WWC) for all characteristics available at the time of randomization except *the percent who took loans*. Baseline characteristics are roughly equivalent on additional student characteristics secured post-randomization though the majority require statistical adjustment in our models based on the WWC guidelines.⁸

AVERAGE IMPACTS

Overall, we find that completion grants do not have a positive or negative impact on a range of outcomes when compared to the outcomes of a comparison group. In Table 5 we show the adjusted marginal means for multiple outcomes. In unadjusted models, at the end of the 2018–19 academic year, there is no marginal difference in credits completed or time-to-degree ($\beta=-0.19$, $p=0.38$; $\beta=-0.17$, $p=0.23$). Likewise, after accounting for continued enrollment, we find no statistically significant impacts on completion or retention. These results remain insignificant in adjusted models.

⁸ WWC guidelines require that variables with greater than a 0.05 effect size in balance are used as control variables in all statical analyses (What Works Clearinghouse, 2020).

TABLE 5. INTENT-TO-TREAT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES

	No Completion Grant	Completion Grant	Adjusted Impact	p-value	Odds Ratio	Standard Error
Marginal Mean						
Credits completed 2018–19	22.33	22.24	-0.09	0.66	/	0.21
Months to graduation	9.91	9.77	-0.13	0.34	/	0.14
Percent						
Completed degree: Fall 2018	21.79	22.39	0.59	0.56	0.04	0.06
Completed degree: Spring 2019	63.51	64.16	0.65	0.59	0.03	0.05
Completed degree: Fall 2019	78.96	79.75	0.80	0.44	0.05	0.06
Completed degree: Spring 2020	87.61	87.49	-0.12	0.89	-0.01	0.08
Completed degree or still enrolled: Spring 2019	95.60	95.81	0.22	0.68	0.05	0.13
Completed degree or still enrolled: Fall 2019	94.57	94.46	-0.11	0.83	-0.02	0.11
Completed degree or still enrolled: Spring 2020	91.44	91.47	0.03	0.96	0.00	0.09

Source | Data are obtained from college administrative records.

Notes | N=14,226 (completion grant group=2,231; no completion grant group=11,995). Months to graduation is calculated only for students who graduated. Cumulative credits is missing for 542 students. All other outcomes are calculated for all students. Degree completion and continued enrollment are derived from logistic regression models: impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models: impacts are reported in relative units. All models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. See Appendix A-2 for unadjusted values. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

However, while the program model was similar across institutions there may have been unique impacts at particular institutions based on population, implementation approach, or other factors. As noted above, we examined some of these possibilities through hierarchical linear modeling. We also show the institution-specific impacts in Table 5.

TABLE 6. INTENT-TO-TREAT MARGINAL IMPACT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES (BY INSTITUTION)

	Completed Degree or Still Enrolled (%)					Completed Degree (%)			
	Cum. Credit	Months to Graduation	Term 2	Term 3	Term 4	Term 1	Term 2	Term 3	Term 4
Overall	-0.07	-0.14	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Institution									
A	0.00	-0.20	0.01	0.02	0.01	0.01	0.01	0.02	0.01
B	-0.36	-0.23	0.01	0.00	0.03	0.03	0.02	-0.04	-0.01
C	-0.42	-0.32	-0.03	0.00	-0.02	0.02	0.00	0.00	-0.01
D	0.04	0.65	0.00	-0.01	-0.04	-0.01	-0.08	-0.07 *	-0.03
E	0.11	-0.45	0.04	0.00	0.00	0.00	0.04	0.07	0.05
F	-0.07	-0.40	0.04	0.00	-0.01	0.01	0.04	0.01	-0.01
G	1.06	0.23	0.00	0.01	0.02	-0.04	0.01	0.05	0.02
H	-0.90	0.12	-0.03 **	-0.01	0.00	-0.01	-0.03	-0.01	-0.02
I	0.08	-0.58	0.01	-0.03	0.00	0.02	-0.01	0.01	-0.02
J	0.16	1.73 *	-0.03	-0.02	0.02	-0.07	-0.05	-0.07	0.05
K	-0.06	-0.80	-0.01	0.00	0.02	0.02	0.08 *	0.03	0.03

Source | Data are obtained from college administrative records.

Notes | *=p<.05, **=p<.01, ***=p<.001. N=14,226 (completion grant group=2,231; no completion grant group=11,995). Terms one through four refer to terms between fall 2018 and spring 2020. Months to graduation is calculated only for students who graduated. Cumulative credits is missing for 542 students. All other outcomes are calculated for all students. Overall models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing value indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Institution specific models control for the previously mentioned characteristics, only if they exceeded an effect size of 0.05 at baseline (see Appendix B2). Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

As with the pooled sample, we find little-to-no impacts for any outcomes across all institutions. We find small, somewhat significant, negative impacts of the program at a few institutions for months-to-graduation, enrollment, and degree completion in the analyses run by institution. However, we suspect these findings are due to type 1 error, as with so many comparisons we are likely to find statistically significant results (Wooldridge, 2015).

As noted earlier, we also conducted multiple heterogeneity analyses to determine if certain groups of students may have been more impacted by the completion grants than others. We find no meaningful differences among students by race, gender, Pell status, or unmet need (see Appendices for more details).

LIMITATIONS AND DISCUSSION

While we believe we have conducted the most rigorous evaluation of completion grants to date and are able to offer confident and concrete advice to decisionmakers, our findings are not without limitations. Some of these limitations are inherent to virtually all RCTs, and others are unique to our implementation.

Arguably the most compelling aspect of our study is its sample size of over 14,000 students across 11 institutions. This provides strong external validity as we can estimate impacts for a wide and diverse group of students. However, our results can only be generalized to grants that are designed in the same way as ours, and to student populations like the ones in our study. A completion grant program designed differently could yield positive effects, and a different student population could see a benefit from an identical grant.

This large sample size also supports our ability to measure even small impacts. The worst outcome for any analysis, particularly an expensive intervention, is not a null effect, but rather a statistically imprecise null effect. Our large sample size means that our main analyses has the statistical power to detect small effect sizes. In other words, we can be confident that our null effects for the pooled sample are precisely estimated zeroes rather than an imprecise estimate of a true positive causal effect. While we can make these strong claims for the average effect, in our many heterogeneity analyses the sample sizes are naturally much smaller. So, while we find no evidence of positive impacts from the intervention on subgroups of students, we may only be powered to detect modest effect sizes in some of these samples, making it difficult to rule out small effects.

The above general caveats aside, there are several limitations specific to our study that warrant discussion. First, the later-stage outcomes of our intervention were measured during the COVID-19 pandemic, which could certainly have impacted the effectiveness of our treatment. However, we see no evidence of strong treatment effects in our pre-pandemic data. As the treatment was only administered before the pandemic, this impact is likely quite small on long-term outcomes measured during the pandemic.

Additionally, our determination of “near completion” is imperfect and could have contributed to a treatment sample that was slightly suboptimal. We originally set out to define our student sample as being within 25% of completing a degree, reasoning that our treatment would have the greatest likelihood of success among a population very close to graduation. However, at the time of implementation, only one institution in our sample had a degree audit system capable of accurately and efficiently determining (e.g., not by hand or relying upon student self-reports) whether a given student was within one year of graduation (Goldrick-Rab et al., 2021). These administrative hurdles have an influence both on the cost-effectiveness of the intervention and its ability to target support to students truly near completion as each institution determined this metric slightly differently based on their capacity. Variation in the metric used will not only reflect variation within institution but within college and degree program—all of which have different degree requirements. Related, changing one's major, or simply carrying credits that do not contribute to a specific program's degree requirements, would also cause our threshold to mechanically overstate students' progress towards a degree.

The difficulty of implementing a homogenous treatment via 11 different independent partners may also have influenced the impacts we find here. A relatively minor example of this is that the size of the completion grants differed somewhat across institutions (see Table 2). Also, many of the institutions that used completion grants prior to their involvement in this study had additional supports available to their students (e.g., advising meetings). They committed to offering these supports to *all* students, not just those in the treatment group. These existing supplemental supports may have nonetheless influenced interactions outside of the program model.

A more significant example of potential divergence from the model is that one institution implemented an altered version of our design in ways that likely reduced the effectiveness of treatment at this institution. There were two key design features at this institution which went against the implementation model we set up. First, the completion grant was not actually a “grant,” and instead could be transitioned into a loan if certain student benchmarks were not met. Structuring the intervention as effectively a forgivable loan may be interesting from a research perspective, but given its potential to elicit decidedly different behavior, our ability to detect a consistent treatment effect was harmed by this choice. Second, this institution distributed funds later than prescribed by the model and notably after the enrollment deadline. In other words, they distributed funds after students had made their enrollment decisions for the first semester of the study. This mechanically made the treatment effect for this institution equal to zero for this first semester, as the grant could not impact credit-taking or persistence decisions for that semester. Fortunately, our overall sample size was large enough to run all analyses excluding this institution and still obtain precise results (the results are unchanged between the full sample and the one excluding this institution).

CONCLUSION AND RECOMMENDATIONS

In a time of tight budgets, growing accountability pressures, and widespread financial insecurity among students, higher education leaders are searching for new solutions. In recent years, completion grants emerged as a practice that motivated widespread adoption. As previously noted, UIA, a leading reform organization, was inspired by the work of two member institutions to undertake a multi-year completion grants initiative across its 11 universities. The result of that work, which received funding from Ascendium and the Bill and Melinda Gates Foundation, included a playbook for program implementation and action steps for leaders.

Will implementing more completion grant programs yield dividends? Unfortunately, the results of this multi-year evaluation suggests that the answer is no. In this study, more than 2,000 students across 11 universities received financial support, collectively representing an expenditure of at least \$2,000,000. But the results do not show any

marked improvements in graduation rates or reductions in time-to-degree. Sometimes financial aid programs affect some students more than others, but we find no evidence of that. It does not appear to matter where completion grants were administered or to whom they were allocated; they did not appear to achieve their desired effects.

These results do not mean that money does not matter to students, nor that all financial aid is ineffective. Nor do they suggest that adding more program requirements would generate bigger effects. Other studies find that simpler programs are often more effective, and there is emerging promising evidence that emergency aid—a far more nimble and responsive approach to student need—may pay off (Anderson, 2021; Evans et al., 2017).

Rather, the most important lesson from this study is that higher education leaders and policymakers need to carefully consider impact evidence when allocating resources. In a sector where sorting—into colleges, programs, degrees—is widespread, it is difficult but essential to rigorously test for efficacy in ways that minimize selection bias. Universities may appear to have high graduation rates or effective programs simply by only admitting students already likely to succeed. In an age of inequality, resources must be allocated in ways that work against that bias and focused where they can make the biggest difference. Current financial aid standards—which direct more resources to full-time students, those with higher grades, or those who are farther along in their programs, or assess need only among students who can complete complex forms—may well be undermining financial aid’s potential return on investment. Future research should consider the effects of directing financial aid to students who appear to be behind, rather than ahead, and to students who demonstrate direct need, rather than need through crude proxies.

APPENDIX A-1. BASELINE COMPARISON OF STUDENTS BY TREATMENT STATUS AND INSTITUTION

Effect Size: Hedges/Cox												
Institution												
		A	B	C	D	E	F	G	H	I	J	K
Student Characteristics												
Variables used in randomization												
%	Average percent of degree credits completed	0.03	0.03	0.01	0.07	0.12	0.02	0.01	0.04	0.08	0.04	0.11
	Enrolled at full-time status	0.03	0.08	0.04	0.02	0.01	0.12	0.04	0.01	0.00	0.29	0.07
	Took out student loans	0.06	0.08	0.05	0.11	0.01	0.09	0.03	0.07	0.01	0.23	0.02
	Pell eligible	0.00	0.00	0.04	0.03	0.02	0.02	0.00	0.00	0.02	0.10	0.00
\$	Average unmet need	0.01	0.05	0.09	0.01	0.09	0.02	0.08	0.02	0.10	0.07	0.06
	Average EFC	0.01	0.06	0.02	0.07	0.09	0.06	0.02	0.07	0.05	0.02	0.00
Additional demographics												
%	Latinx	0.09	0.03	0.11	0.03	0.05	0.12	0.15	0.04	0.09	0.07	0.00
	Asian (non-southeastern)	0.08	0.11	0.03	0.07	0.16	-	-	-	-	0.02	0.11
	American Indian	0.05	0.04	0.07	0.03	0.09	0.15	0.04	0.07	0.01	-	0.05
	Black or African American	0.06	0.00	0.13	0.15	0.17	0.01	0.07	0.00	0.02	0.05	0.16
	White	0.11	0.14	0.05	0.04	0.22	0.03	0.09	0.06	0.03	0.13	0.18
	Female	0.01	0.04	0.00	0.08	0.33	0.03	0.03	0.08	0.02	0.12	0.06
	Independent on FAFSA	0.06	0.04	0.21	0.04	0.04	0.08	0.01	0.00	0.14	-	0.02
\$	Family income 2018-2019	0.03	0.14	0.06	0.11	0.03	0.10	0.04	0.07	0.12	0.30	0.01

Source | Data are obtained from college administrative records.

Notes | N=14,226 (completion grant group=2,231; no completion grant group=11,995). Differences between treatment and control are reported in effect size. Data are obtained from school administrative records. Effect sizes are calculated according to What Works Clearinghouse standards, only for variables on which students were randomized. Family income is a combination of student income and parent income as reported on the FAFSA. Percent of degree credits completed refers to the percentage of needed credits to graduate from the university students attended at the time of randomization. Percent of students who took out student loans refers to the percent of students who took out any kind of federally

reported student loan of any amount. Independent on the FAFSA refers to the percent of students who have been determined to be independent for FAFSA filing purposes, and therefore do not need to report parental income. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

APPENDIX A-2. UNADJUSTED INTENT-TO-TREAT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES

	Unadjusted					
	No Completion Grant	Completion Grant	Impact	p-value	Odds Ratio	Standard Error
Months/Credits	Marginal Mean					
Credits completed 2018-2019	22.35	22.16	-0.19	0.38	/	0.22
Months to graduation	9.91	9.74	-0.17	0.23	/	0.14
Percent						
Completed degree: Fall 2018	21.75	22.52	0.77	0.44	0.05	0.06
Completed degree: Spring 2019	63.50	64.17	0.68	0.58	0.03	0.05
Completed degree: Fall 2019	78.95	79.73	0.79	0.45	0.05	0.06
Completed degree: Fall 2020	87.60	87.40	-0.20	0.81	-0.02	0.08
Completed degree or still enrolled: Spring 2019	95.61	95.76	0.15	0.78	0.04	0.13
Completed degree or still enrolled: Fall 2020	94.56	94.36	-0.20	0.72	-0.04	0.11
Completed degree or still enrolled: Spring 2020	91.43	91.38	-0.06	0.94	-0.01	0.09

Source | Data are obtained from college administrative records.

Notes | N=14,226 (completion grant group=2,231, no completion grant group=11,995). Months to graduation is calculated only for students who graduated. Cumulative credits is missing for 542 students. All other outcomes are calculated for all students. Degree completion and continued enrollment are derived from logistic regression models; impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models; impacts are reported in relative units. All models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

APPENDIX A-3. HETEROGENEITY OF ADJUSTED INTENT-TO-TREAT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES, BY RACE

	Difference in Impact for											
	White		Black or African American		Latinx		American Indian		Southeastern Asian		Other Asian	
Months/ Credits	b	SE	b	SE	b	SE	b	SE	b	SE	b	SE
Credits completed 2018-2019	-0.06	0.31	-0.25	0.55	-0.05	0.50	0.42	2.14	-0.19	1.07	-0.26	0.80
Months to graduation	-0.17	0.20	0.72	0.39	-0.10	0.32	0.64	1.62	-1.24	0.69	-0.45	0.50
Percent	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Completed degree: Fall 2018	1.08	0.10	0.98	0.16	0.93	0.13	0.75	0.43	0.78	0.27	1.13	0.26
Completed degree: Spring 2019	1.07	0.08	0.87	0.12	0.95	0.12	0.63	0.31	1.39	0.42	1.11	0.23
Completed degree: Fall 2019	1.22	* 0.12	0.80	0.13	0.76	0.12	0.34	* 0.18	1.17	0.42	0.79	0.20
Completed degree: Fall 2020	1.15	0.13	0.98	0.20	0.71	0.13	0.44	0.24	0.68	0.28	0.79	0.27
Completed degree or still enrolled: Spring 2019	1.10	0.21	0.86	0.29	0.95	0.30	1.52	1.68	0.50	0.32	0.93	0.54
Completed degree or still enrolled: Fall 2020	1.08	0.18	0.75	0.21	0.85	0.23	0.67	0.44	0.74	0.41	1.79	1.13
Completed degree or still enrolled: Spring 2020	1.05	0.14	1.14	0.27	0.91	0.20	0.55	0.31	0.71	0.33	0.88	0.35

Source | Data are obtained from college administrative records.

Notes | SE=standard error, OR=odds ratio, *=p<.05, **=p<.01, ***=p<.001. N=14,226 (White=5,621, Black or African American=1,850, Latinx=4,003, American Indian=128, Other Asian=1,265). Impacts for White students represent the treatment impact for intercept students. Models include a series of treatment by race and ethnicity interactions (race/ethnicity x treatment). Differences in impact estimates are therefore relative to the impact estimates for White students. Degree completion and continued enrollment are derived from logistic regression models; impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models; impacts are reported in relative units. All models control for college fixed effects, gender, race and ethnicity, dependency status

on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

APPENDIX A-4. HETEROGENEITY OF ADJUSTED INTENT-TO-TREAT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES, BY GENDER

Female			Difference in Impact for Male Students	
Months / Credits	b	Standard Error	b	Standard Error
Credits completed 2018-2019	0.31	0.26	-0.96 *	0.40
Months to graduation	0.05	0.17	-0.42	0.26
Percent	Odds Ratio	Standard Error	Odds Ratio	Standard Error
Completed degree: Fall 2018	0.92	0.07	1.31 *	0.15
Completed degree: Spring 2019	0.99	0.07	1.09	0.11
Completed degree: Fall 2019	1.00	0.08	1.10	0.13
Completed degree: Fall 2020	0.98	0.10	1.00	0.14
Completed degree or still enrolled: Spring 2019	1.05	0.18	0.99	0.24
Completed degree or still enrolled: Fall 2020	0.87	0.12	1.27	0.26
Completed degree or still enrolled: Spring 2020	0.91	0.11	1.22	0.20

Source | Data are obtained from college administrative records.

Notes | *=p<.05, **=p<.01, ***=p<.001. N=14,226 (female=7,854, not female=6,372). Impacts for male students represent the treatment impact for intercept students. Models include a series of treatment by gender interactions (female x treatment). Differences in impact estimates are therefore relative to the impact estimates for male students. Degree completion and continued enrollment are derived from logistic regression models; impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models; impacts are reported in relative units. All models were run as complete case analysis. All models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

APPENDIX A-5. HETEROGENEITY OF ADJUSTED INTENT-TO-TREAT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES, BY PELL GRANT STATUS

	Pell Eligible		Difference in Impact for Not Pell Eligible	
Months / Credits	b	Standard Error	b	Standard Error
Credits completed 2018-2019	-0.07	0.22	-0.10	0.55
Months to graduation	-0.06	0.15	-0.47	0.34
Percent	Odds Ratio	Standard Error	Odds Ratio	Standard Error
Completed degree: Fall 2018	1.05	0.07	0.91	0.14
Completed degree: Spring 2019	1.02	0.06	1.06	0.15
Completed degree: Fall 2019	1.01	0.07	1.34	0.24
Completed degree: Fall 2020	0.96	0.08	0.83	*
Completed degree or still enrolled: Spring 2019	1.04	0.14	1.09	0.42
Completed degree or still enrolled: Fall 2020	0.90	0.10	2.23	*
Completed degree or still enrolled: Spring 2020	0.95	0.09	1.49	0.38

Source | Data are obtained from college administrative records.

Notes | *=p<.05, **=p<.01, ***=p<.001. N=14,226 (Pell eligible=12,114, not Pell eligible=2,112). Impacts for Pell eligible students represent the treatment impact for intercept students. Models include a treatment by Pell interactions (Pell eligible x treatment). Differences in impact estimates are therefore relative to the impact estimates for Pell eligible students. Degree completion and continued enrollment are derived from logistic regression models; impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models; impacts are reported in relative units. All models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

APPENDIX A-6. HETEROGENEITY OF ADJUSTED ITT ESTIMATES OF COMPLETION GRANTS ON ACADEMIC OUTCOMES, BY UNMET NEED

	Difference in Impact for Students with Unmet Need in:									
	No Unmet Need		\$1–\$3,000		\$3,001–\$6,000		\$6,001–\$9,000		Above \$9,000	
Months/Credits	b	SE	b	SE	b	SE	b	SE	b	SE
Credits completed 2018-2019	-0.24	1.17	0.31	1.24	0.53	1.23	-0.37	1.23	0.01	1.23
Months to graduation	0.18	0.92	-0.51	0.96	-0.18	0.96	-0.45	0.96	-0.23	0.96
Percent	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Completed degree: Fall 2018	1.29	0.40	0.76	0.26	0.81	0.27	0.91	0.30	0.91	0.30
Completed degree: Spring 2019	0.61	0.18	2.00 *	0.64	1.81	0.57	1.43	0.45	1.74	0.55
Completed degree: Fall 2019	0.66	0.21	1.69	0.59	1.76	0.60	1.47	0.50	1.59	0.54
Completed degree: Fall 2020	0.72	0.27	1.32	0.54	1.69	0.67	1.07	0.43	1.55	0.62
Completed degree or still enrolled: Spring 2019	3.18	3.32	0.43	0.47	0.39	0.42	0.23	0.24	0.32	0.35
Completed degree or still enrolled: Fall 2020	0.71	0.39	1.38	0.84	1.71	1.01	1.01	0.60	1.64	0.98
Completed degree or still enrolled: Spring 2020	0.74	0.35	1.22	0.62	1.71	0.85	1.22	0.61	1.38	0.69

Source | Data are obtained from college administrative records.

Notes | SE=standard error, OR=odds ratio, *=p<.05, **=p<.01, ***=p<.001. N=14,226. Bin 1: \$0, Bin 2: \$1 to \$3,000; Bin 3: \$3,001 to \$6,000; Bin 4: \$6,001 to \$9,000; Bin 5: above \$9,000. Impacts "No Unmet Need" students represent the treatment impact for intercept students. Models include a series of treatment by unmet need bin interactions (unmet need x treatment). Differences in impact estimates are therefore relative to the impact estimates for students with zero unmet need. Degree completion and continued enrollment are derived from logistic regression models; impacts are reported in percentage points. Cumulative credits and months to graduation impacts are derived from linear regression models; impacts are reported in relative units. All models control for college fixed effects, gender, race and ethnicity, dependency status on the FAFSA, family income, missing variable indicator, and characteristics not equivalent at baseline: percent of credits needed to complete college, has student loans. Nine of the 11 universities have no missing data. University of Illinois at Chicago has two students with missing FAFSA information. The remaining missing data are from Florida International University. Missing values have been mean imputed. Frequency of missing are as follows: female (19), took out student loans (81), Pell eligible (81), race and ethnicity (1), independent on FAFSA (81), EFC (83), unmet need (81), and percent of degree credits completed (81). Full-time enrollment and family income have no missing values.

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