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Pre-Analysis Plan
Transfer, Accelerate, Complete, Engage (TrACE): Experimental Evidence on Transfer Student Success at Four-Year Universities

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Background:

A growing body of research has documented positive effects of multifaceted interventions on rates of college completion, most notably among students at community colleges (Dynarski & Oster, 2016; Scrivener et al., 2015; Weiss et al., 2019). These interventions typically combine financial, advising, academic, and social supports. For example, the Accelerated Study in Associate Programs (ASAP) blended substantial financial support with intensive, personalized advising and structured requirements (e.g., students had to enroll full time). The ASAP program was piloted at community colleges in New York and boosted 3-year and 6-year degree completion rates by 18 and 10 percentage points, respectively. A similar, ASAP-like intervention in Ohio nearly doubled the 3-year completion rate for community college students seeking an associate degree (i.e., from 19 to 35 percent).

While these comprehensive interventions boast impressive effects on completion within the community college context, little work has explored the capacity of similar interventions to address barriers faced by community college students who transfer to 4-year institutions.[1] These students often struggle to persist and complete at rates comparable to peers who started their college journeys at a 4-year institution (i.e., their "native" peers). For example, within the UNC System of public 4-year institutions, the 2-year completion rate for students who transfer from community colleges (with an associate degree) is about 33 percent—nearly 34 percentage points lower than their within-cohort peers who started at a public 4-year institution (i.e., a 4-year completion rate of 67 percent).[2] Gaps in 3-year completion rates between transfers from community colleges and their within-cohort native peers are around 23 percentage points for recent cohorts.

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[1] A few institutions have started to pilot the Accelerate, Complete, Engage (ACE) program—which is CUNY's ASAP program adapted to the 4-year context. For example, see the interim report of a study of ACE at John Jay College: https://osf.io/s8bq3/download

[2] Based on completion statistics for recent cohorts, available here: https://myinsight.northcarolina.edu/t/Public/views/db_transfer/GraduationRates?%3Aiid=1&%3AisGuestRedirectFromVizportal=y&%3Aembed=y

This project will examine the effects of a comprehensive intervention on outcomes for students at public 4-year institutions who have transferred from community colleges. The **Tr**ansfer, **A**ccelerate, **C**omplete, **E**ngage (TrACE) intervention is adapted from the CUNY ASAP/ACE model and will be implemented at three public 4-year universities in the UNC System. TrACE was piloted in a non-randomized fashion during the 2022-23 academic year in order to set up structures and processes necessary for delivering program components.

The fully developed TrACE program will be piloted as a randomized controlled trial across three public 4-year universities in the UNC System in Fall 2023. The duration of the program is two years (i.e., 2023-24 and 2024-25). We will examine the effects of TrACE on measures of postsecondary progress, performance, and completion (e.g., graduation within two and three years of transfer).

Sample and Eligibility Criteria:

Our sample consists of transfer students at the three UNC System 4-year universities who applied to participate in TrACE and met the eligibility criteria. Students are eligible for TrACE if they meet the following criteria:

1) NC resident;
2) Transferring from a North Carolina Community College;
3) No more than 2 years between departure from community college and enrollment in a UNC System 4-year institution for the Fall 2023 term (summer 2023 enrollees can also apply to TrACE);
4) Entering with an associate degree (of any type) or 60 credits (with flexibility for those who are on track to attain those 60 credits by the time they start the semester);
5) Pursuing their first bachelor's degree through transferring to the 4-year institution (regardless of country of origin);
6) Intending to enroll full-time (i.e., at least 12 credit hours) in the Fall 2023 semester;
7) Agreeing to attempt a total of 30 credits over the course of an academic year (fall + spring + summer terms);
8) Not a graduate of a Cooperative Innovative High School (e.g., early and middle colleges);
9) Not pursuing a fully online program.

The participating institutions will identify eligible students using administrative data and invite them to apply to the TrACE program.

TrACE Program Components:

The TrACE program is a multifaceted intervention that includes the following elements:

- ***Access to a TrACE success coach***, who complements students' academic advisors, but occupies a different role in supporting student success;
- ***Monthly incentive*** of $100 per month of participation if students meet the program engagement requirements;
- ***Textbook scholarship*** of up to $600 per student per year;
- ***Tuition and fee gap scholarship*** that covers remaining unmet need (i.e., remaining tuition and fee costs after other federal, state, and institutional aid has been applied); Students are eligible for this component if they have qualified for federal or state need-based financial aid;
- ***Summer tuition support*** that covers up to 6 credit hours per student during the summer (i.e., Summer I and Summer II terms).[3]

RCT Design:

Eligible applicants to TrACE will be randomly assigned to the treatment or control group during July 2023 in a campus-specific manner that functionally "blocks" by institution. Each TrACE institution will provide the research team with an anonymized list of eligible applicants from their campus. The research team will randomly order the anonymized list of eligible applicants and return the lists to the campuses.

Each campus will invite students to participate in TrACE in the order in which they appear on the randomized lists. Due to resource constraints, each campus will invite a maximum of 70 percent of students on their randomized list, and will not exceed 75 acceptances per TrACE advisor. We estimate that each campus will secure roughly 150 eligible applicants. However, the number of applications per institution may vary. Thus, a reasonable estimate of the total analytic sample, across all three institutions, is 450 students.

At each campus, all applicants who receive an invitation to participate in TrACE—regardless of whether they accept—will comprise the treatment group. All eligible applicants who did not receive an invitation to participate in TrACE will comprise the control group.

Analysis Plan:

Empirical Approach

We will compare measures that capture postsecondary progress, performance, and completion (e.g., 2-year and 3-year completion rates) for students in the treatment group to their counterparts in the control group. We will begin by estimating models of the following form via ordinary least squares (OLS):

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[3] Summer support is subject to available remaining funds.

$$Y_{is} = \alpha + \beta_1 TrACE_{is} + \delta_s + \varepsilon_{is} \qquad (1)$$

$$Y_{is} = \alpha + \beta_1 TrACE_{is} + \delta_s + \beta_x X_i + \varepsilon_{is} \qquad (2)$$

where $TrACE_{is}$ is an indicator variable equal to one if student i at institution s was randomly offered a spot in the program and zero otherwise; δ_s is a vector of institution fixed effects; X_i is a vector of baseline student characteristics;[4] and ε_{is} is an error term. The inclusion of student-specific characteristics in equation (2) should not meaningfully alter our estimated coefficients, but may increase the precision of our estimates. Hence, we will consider estimates from equation (2) as our primary results. Within this setup, β_1 is the parameter of interest, and it represents the effect on the outcome of being randomly offered access to the TrACE program (i.e., the intent-to-treat effect).

Given recent econometric concerns that stem from the use of randomized lists for offering program spots, we will explore the robustness of our findings from the above approach to the use of the doubly reweighted ever-offer (DREO) estimator proposed by de Chaisemartin and Behaghel (2020). The authors show that the endogenous stopping rule present within randomized list setups can lead to bias in estimated treatment effects. However, the magnitude of the bias grows as the number of lists increases (and as the number of applicants per list decreases). Therefore, in our setting, with few lists (i.e., three) and ample numbers of expected applicants per list, we anticipate that estimates that emerge from the DREO estimator will closely mirror estimates from equation (2). However, this is an empirical question, and we will explore the magnitude of any such bias present in our setting. We will report estimates using the DREO estimator that are comparable to those that emerge from equation (2) to facilitate a transparent assessment of robustness.

Outcomes of Interest

Most outcomes are measured using administrative data from the UNC System Student Data Mart (SDM). A few measures that permit us to characterize campus-specific treatment-control contrasts in engagement with campus resources (e.g., use of tutoring of career services) will come directly from the institutions.

Primary Outcomes: Our primary or confirmatory outcomes are 2-year and 3-year completion rates for transfer students, measured as a function of the first semester they touch a 4-year institution; further, following UNC System definitions, each completion measure will include the

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[4] We intend to include the following baseline covariates: intended major, gender, race and ethnicity, economic disadvantage (e.g., Pell Grant eligibility, household income, estimated family contribution as calculated by FAFSA), and measures of baseline academic performance.

summer following the relevant spring term. For example, for transfer students beginning at a 4-year institution in Fall 2023, the 2-year completion outcome will be based on data through summer 2025; analogously, the 3-year completion outcome will use data through summer 2026.[5]

Intermediate Outcomes: We will also examine effects of access to TrACE on a range of intermediate (or exploratory) outcomes along the path to degree completion. Such intermediate outcomes will include measures that capture persistence (e.g., enrollment in subsequent terms), progress (e.g., credits attempted, credits earned), and academic performance (e.g., semester GPA, cumulative GPA, course withdrawals and fails).

Subgroup Analyses

Because randomization will occur at the institution level, our study design is effectively blocked by institution. We will explore how results differ by institution, pairing estimates of campus-specific treatment effects (power permitting) with rich survey-based evidence on differences in treatment-control contrasts across sites. We will also examine whether effects on the range of intermediate and distal outcomes listed above differ by other relevant subgroups of students, including those defined by initially declared major, gender, race and ethnicity, economic disadvantage, and measures of baseline performance or transfer credits.

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[5] Because we will use data from the UNC System to construct these outcomes, we will capture postsecondary completion even if a student transfers to another 4-year public institution in North Carolina. However, if a student leaves the state system of public 4-year institutions, we will not observe their completion outcomes. In addition, we will adjust for multiple comparisons across these primary outcomes.

References

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