Wallin Scholars Evaluation: Analysis Plan

MDRC

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Abstract

For over 30 years, Wallin Education Partners has operated the Wallin Scholars Program, a program that provides financial aid, advising, and career supports to Minnesota high school seniors from low-income backgrounds as they transition to attending 4-year and 2-year colleges. The study will use a randomized controlled trial (RCT) design to estimate the causal effect of the opportunity to participate in the Wallin Scholars program. The program contains three main components: one-on-one advising support; financial aid for college and college-related expenses; and access to career supports such as internships and networking opportunities. Access to the program is contingent on being an actively enrolled student at an eligible college and remaining engaged with Wallin program staff and advising.

The study plans to enroll approximately 1,600 students[1] into two randomly assigned experimental arms, a program group and a control group, across two cohorts, fall 2025 and fall 2026. To answer whether the Wallin Scholars Program improves academic and career outcomes, the team will estimate the average (across individuals) intent-to-treat (ITT) effect of the program on retention in college and degree attainment through five years after random assignment. The program will also follow outcomes related to employment and earnings through administrative data sources and student surveys.

[1] Numbers are rough estimates and subject to change depending on the number of students who apply for the program.

Contents

Background

Postsecondary education is widely seen as the primary pathway to upward economic mobility for people from low-income backgrounds. In the last several decades, great strides have been made in college access: more and more students are able to attend college. Yet attainment rates – the rates at which students entering a college earn a credential — have remained low. Attainment rates for public two-year colleges are only 34 percent three years after entry,[i] and 57 percent at 4 years after entry for four-year colleges.[ii] Because the return on investment for college graduates can be so great, improving college credential attainment is an important anti-poverty policy goal.

Policymakers, school leaders, and researchers have tried an array of interventions to increase graduation rates. These include interventions to help students acclimate to college, such as learning communities and success courses; interventions to assist with financial concerns, such as scholarships and tuition reductions; interventions to provide additional advising or tutoring; interventions to change classroom pedagogy; and many more. The interventions vary widely in structure, intensity, length, and cost. Many interventions have produced positive impacts on academic outcomes such as persistence in college and credits earned; some even produce positive impacts on graduation rates.

Across the postsecondary education research literature, a lesson is emerging: the interventions with the greatest impacts on student outcomes are those that simultaneously address multiple barriers to success and do so across multiple years.[iii] Interventions that combine multiple

evidence-based strategies into a single, integrated program are becoming increasingly prominent nationwide. [iv]

But not all contexts or long-term impacts have been tested, and this project presents an opportunity to learn about the impact of a unique support program with multiple interventions over a long period of time.

The Wallin Scholars Program is an evidence-based program combining three intervention components to improve academic and career outcomes for students from low-income backgrounds, most of whom are students of color. The program is targeted to specifically address equity gaps for low-income students from the Twin Cities area of Minnesota. The program's three main components – advising, financial aid, and career support services – are student support interventions associated with positive academic and/or career outcomes in rigorous research. First, research suggests that advising can have meaningful impacts on college persistence and completion rates among other positive outcomes.[v] Second, several disbursement and incentive models for financial aid has been associated with increased college credit accumulation.[vi] The Wallin Scholars disbursement will represent a new opportunity to look at last dollar scholarships for students over their full time at college. Lastly, participation in a career pathways program that includes additional support components is associated with increased credential completions and employment in targeted industries.[vii] This study presents an opportunity to study the intersection of these three intervention areas and how impacts change over a long-term follow up period.

Provisional Timeline

The evaluation will include two cohorts of students: students entering college in fall 2025 and fall 2026. For each cohort, students will be randomly assigned in the spring prior to their planned college enrollment date.

An interim findings brief, as well as updates on when findings will be available, will be accessible publicly on MDRC's website. MDRC intends to follow outcomes 5 years after students begin with the program, and possibly further depending on data and funding availability.

The study will also conduct implementation research; however, this is not the focus of this analysis plan.

Description of Program/Intervention

The Wallin Scholars Program includes three main components: advising supports, financial supports, and career supports.

Advising supports

After being accepted into the Wallin Scholars Program, scholars are immediately matched with a trained advisor, employed by Wallin, to receive one-on-one advising support. Scholars meet with

advisors monthly during their first year in the program and then consistently, in an advisor-scholar agreed upon cadence, in subsequent years.

Advisors are trained to facilitate conversations that relate to four dimensions of scholar success including:

Degree planning and academic support: Advisors facilitate conversations to help scholars understand the requirements of their degree program, improve time management, and learn study skills.

Financial aid: Advisors and scholars discuss the financial aid process including the disbursement of Wallin funds. Scholars work to develop and demonstrate knowledge and skills required for aligning degree completion with financial planning.

Career development: Advisors and scholars discuss how scholars' degree program and major relate to specific career and internship opportunities including those offered by Wallin. Advisors help scholars gain the knowledge and skills to access and utilize relevant career and internship resources on campus and in their communities. Advisors may also direct scholars to utilize Wallin career supports such as networking events, career fairs, and internship opportunities.

Personal support: Advisors and scholars discuss how to access and utilize relevant resources on campus or in the community for mental and physical health and well-being. Additionally, advisors can provide generalized support and listen to scholars as they discuss challenges that they are having either with their studies or with external issues that might be affecting their academic abilities.

Financial supports

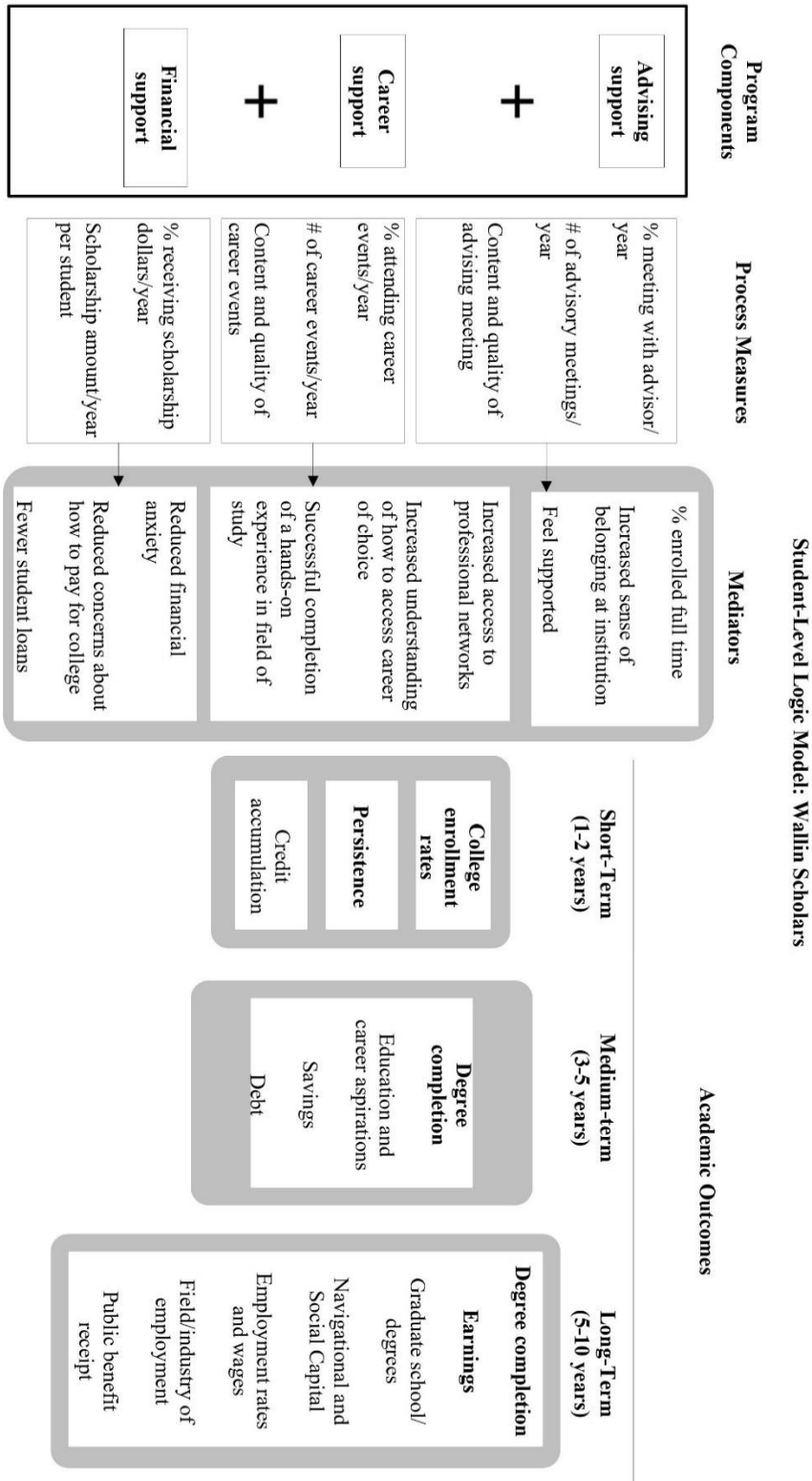
The Wallin Scholars Program provides a last-dollar scholarship to students spread over their four years of college. Four-year Scholars are eligible for up to $16,000 over four years. Funds are usually disbursed evenly over the four years of school, but advisors have the discretion to request a different disbursement cadence depending on a Scholar's individual circumstances.

Two-year Scholars are eligible to receive up to $6,000 for those who attend a partner community college through the Opportunity Pathway; up to $8,000 for those who attend Dunwoody College of Technology as part of the Aspire Pathway; and up to $30,000 for those who pursue a career with Mortenson, a commercial construction company headquartered in Minneapolis, and who attend Dunwoody College of Technology as part of the Mortenson Pathway. This study will evaluate students only in the Opportunity Pathway.

Career supports

Wallin Scholars hosts career fairs and workshops that are available to Scholars. Wallin also connects Scholars to community and career opportunities through their network of partners, including many of their donors. Wallin scholars are also eligible to apply to several paid internship and project opportunities through the Wallin-operated UpTurnships program.

Logic model


Student-Level Logic Model: Wallin Scholars
Program Components
Process Measures
Mediators
Academic Outcomes
Advising support
+
Career support
+
Financial support
% meeting with advisor/ year
# of advisory meetings/ year
Content and quality of advising meeting
% attending career events/year
# of career events/year
Content and quality of career events
% receiving scholarship dollars/year
Scholarship amount/year per student
% enrolled full time
Increased sense of belonging at institution
Feel supported
Increased access to professional networks
Increased understanding of how to access career of choice
Successful completion of a hands-on experience in field of study
Reduced financial anxiety
Reduced concerns about how to pay for college
Fewer student loans
Short-Term (1-2 years)
College enrollment rates
Persistence
Credit accumulation
Medium-term (3-5 years)
Degree completion
Education and career aspirations
Savings
Debt
Long-Term (5-10 years)
Degree completion
Earnings
Graduate school/ degrees
Navigational and Social Capital
Employment rates and wages
Field/industry of employment
Public benefit receipt

Institutional Review Board (IRB) Approval
MDRC's IRB approved the Wallin Scholars Evaluation study on October 17, 2024, and approved the specifics of the RCT, including enrollment procedures and informed consent. The project was determined to be a Minimal Risk project and is required to complete continuing reviews with MDRC's IRB on an annual basis. MDRC's IRB can be reached by emailing IRB@mdrc.org.

MDRC's IRB is located at:

MDRC IRB
200 Vesey Street
23rd Floor
New York, NY 10281

Eligible population: Students
To be eligible, students must meet the following criteria, as determined by Wallin scholarship eligibility:

- High school senior attending a partner Minnesota high school[viii]
- Minimum 3.0 GPA (four-year program), minimum 2.0 GPA (two-year program)
- Demonstrated financial need: Income (Household 1-5 people <= $95,000; Household 6 or more people <= $135,000)
- For the four-year program, must attend accredited, 4-year public or private institution in Minnesota, Iowa, North Dakota, South Dakota, or Wisconsin, or any HBCU.
- For the two-year program, must attend a partner community college in Minnesota[ix]

While the *eligible population* is comprised of all students who meet the criteria described above, the evaluation will only include students who complete an application to participate in the program and consent to participate in the study. Due to donor restrictions on a limited number of scholarships, a predetermined number of students will be selected from the applicant pool to fill these scholarship slots and removed from the study sample. The remaining pool of study students will be sorted into two tracks: a "traditional" Wallin track (i.e., students who fit the typical criteria of Wallin Scholars selected in recent years prior to the RCT) and a "pilot" track that expands the pool of recipients beyond the typical Wallin Scholars student. For purposes of the research study, MDRC will evaluate all students in the program group, regardless of track, however Wallin may report their own year-over-year program figures based on these track assignments. Additionally, MDRC will run a subgroup analysis by track.

The target of inference for the evaluation is the average effect of the Wallin Scholars Program for the students in the study (or subpopulations). Generalizing findings to all eligible students in the eligible population (i.e., eligible students who are in and are not in the study) cannot easily be justified statistically. For instance, students who opt not to participate in the program (and, by extension, the study) may do so because they know that the Wallin Scholars Program will not be a good fit for their needs or they may be interested in attending college out of state. The average

effect the program would have on students who are not in the study may be different than the average effect of the program for students who are in the study.

Study Sample Size: Wallin Educational Partners (Wallin) plans to recruit and randomly assign approximately 1,600 students for their 2 and 4-year college scholarship programs.[2] These students will be enrolled into the study in two cohorts, across the 2024-2025 and 2025-2026 school years. These students must meet the eligibility requirements described above, agree to participate in the study, and go through the random assignment process. The first study cohort will be randomly assigned in spring 2025, ahead of the fall 2025 college semester. Each cohort's total sample size goal and proportion assigned to the program reflect several factors: (1) application simplicity (a simpler application may increase the number of complete applications received than in previous years), (2) the eligible population of students (as a proportion of the applicant pool), (3) the number of scholarship slots (the size of the program group will depend on the number of scholarships made available each year), and (4) the number of scholarship slots that need to be dedicated to specific donor match requirements and removed from the study pool. To account for specific donor requirements, students will also be stratified prior to random assignment based on certain characteristics (such as race/ethnicity, intended major or field of study, or high school) to ensure that all program slots available only to a certain "type" of student are filled.

The table below summarizes the total number of students currently planned for each program across two cohorts.

Table 1: Total Study Enrollment Targets for Two Cohorts, by Program/Control Group[2]

	Estimated Number of Scholarship Applicants Students	Donor-Specific Scholarships (Non-study)	Total Students in Study Sample	Program	Control	Estimated Percent Assigned to Program
4-Year Program	1,460	140	1,320	480	840	36%
2-Year Program	460	140	320	140	180	44%
Total	1,920	280	1,640	620	1,020	38%

2 Numbers are subject to change. They are estimates based on the 2023 application cycle and are inclusive of additional criteria such program eligibility and opting in to data sharing.

Impact Research

Key Research Questions

Specifying confirmatory (or sometimes called primary) outcomes imposes discipline on the analysis and reduces concerns about data mining, particularly when there are a range of possible outcomes that a study will examine. Confirmatory outcomes are key objectives of the intervention (e.g., degree receipt and earnings) and outcomes for which there is a clear hypothesis being tested. Exploratory, or secondary, outcomes (e.g., economic well-being, type of institution attended), are outcomes of interest but not the primary outcomes. Secondary outcomes may include mediators (e.g., participation in career preparation activities), other outcomes of interest (graduate school enrollment), and outcomes for subgroups. As noted, the current study will track students through the spring semester of 2030, or for five years after the first cohort is enrolled. Assuming graduation from college in four years, this timeline allows the team to track the first cohort through one year after college graduation and the second cohort through college graduation. For this reason, effects on earnings and employment outcomes are considered exploratory at this stage but would be considered confirmatory for a longer-term analysis.

The study's confirmatory research questions are:

- What is the effect of the offer of the Wallin Scholars Program on students' initial enrollment in college, persistence in college, and degree attainment?

Given that degree receipt is expected to occur in later years, college enrollment and persistence will be the confirmatory education outcome in Years 1-3 and degree receipt will be the confirmatory education outcome in years 4 and 5.

The study's exploratory research questions include:

<u>Postsecondary education</u>

- What is the effect of the Wallin Scholars Program on college credits earned?
- What is the effect of the Wallin Scholars Program on participation in career preparation activities such as internships and apprenticeships?
- What is the effect of the Wallin Scholars Program on graduate school enrollment and completion?

<u>Employment, earnings, and economic well-being</u>

- What is the effect of the Wallin Scholars Program on earnings in each year?
- What is the effect of the Wallin Scholars Program on employment rates in each year?
- What is the effect of the Wallin Scholars Program on sector of employment?
- What is the effect of the Wallin Scholars Program on self-reported student loan debt, personal savings, and sense of economic well-being?

<u>Subgroups and populations</u>

- What is the effect of the Wallin Scholars Program on academic and labor market outcomes for students eligible for the two-year scholarship?
- What is the effect of the Wallin Scholars Program on academic and labor market outcomes for students eligible for the four-year scholarship?
- What is the effect of the Wallin Scholars Program on different subgroups of students, defined by gender, first-generation status, race/ethnicity, high school GPA, Wallin track (traditional/pilot), Wallin ranking (if available) and other factors?

Evaluation Design

Eligible Population / Sample Strategy

The eligible population is discussed in the Intervention section of this document under "Eligible Population." The study sample will include voluntary participants who apply for the program and agree to partake in the study. Study participants will be identified via Wallin's application process. While Wallin has an existing outreach strategy to reach students in the eligible population, program participants still may not be representative of the eligible population.

Identification Strategy (Study Design)

The evaluation will use individual random assignment design, in which eligible applicants will be assigned at random to the Wallin group, offered the program, or a control group, not offered the program but eligible to apply for existing scholarships in the community. Random assignment will occur within blocks, as described further below. This blocking may improve the precision of the impact estimator.[x] It also enables the study of variation in program effects across programs (and blocks), since it enables unbiased estimation of program effects for each type of program.[xi]

The random assignment process will work as follows: in the fall before the Wallin Scholars Program opens their application process, Wallin Educational Partners and partner high school staff will share information about the Wallin Scholars Program and the RCT with prospective applicants. While on-the-ground recruitment efforts will be conducted like in years past, the application process will be simplified to expand the pool of recruitment. Language about the RCT will be included in information publicizing the program.

If students are interested in the program, they will complete an application. Embedded within the application, applicants will fill out baseline information, an informed consent form, and additional application materials.

Students complete the forms online. Upon conclusion of each program's application cycle, students will then be divided into groups, or blocks, based on whether they fit the typical Wallin Scholar profile (traditional track) or not (pilot track), as determined by Wallin staff criteria. Within these two blocks, students may be divided further based on other characteristics, such as type of program (2- versus 4-year), and other characteristics (e.g., race/ethnicity, field of study, etc.) in order to satisfy donor preferences. Within each block, students will be assigned, using MDRC's random assignment system, to the program or control group. The program group will have access to the Wallin Scholar Program and will be sent an offer of the scholarship and

services. The control group will not be offered the Wallin Scholars Program, but they will be able to pursue scholarships available to all students in the community. Students in the control group will not receive Wallin services, to prevent crossovers and ensure appropriate treatment contrast in the study. If a student from the program group declines to participate in the Wallin Scholars Program for any reason, a student from the control group may be randomly selected from the same block to be re-assigned to the program group to ensure as many students are served as possible.

Data Sources

The following data sources will be used as part of the analyses to examine the program's effects:

Baseline Survey: All students will fill out baseline information during their application to the program, prior to random assignment. This will be embedded within Wallin's existing application to ensure high completion rates. The questions will ask about student demographics, family income, parents' education level, and academic performance. Baseline data will be used to describe the study sample, document baseline equivalence between the program and control group, define subgroups for subgroup analyses, and create covariates for the impact models.

Program data: Program group student participation in advising sessions, events, scholarship receipt, and other program activities will be collected by Wallin Scholars Program staff. These data will be provided to MDRC by Wallin Educational Partners and will contain data on student participation in program activities and scholarship receipt.

Surveys: MDRC will collect information on both program and control students via a student survey during the first 4-5 years after high school graduation. The survey will field questions to obtain data on college experiences, academic and career advising, savings, debt, and economic well-being.

National Student Clearinghouse (NSC): MDRC will acquire and work with data obtained through the NSC, which covers students' enrollments and degree attainment in most (roughly 99 percent) of degree-granting postsecondary institutions throughout the U.S. NSC data allow us to track enrollment and degree completions at colleges within and outside of Minnesota.

Minnesota Statewide Longitudinal Education Data System (SLEDS). SLEDS collects several types of data relevant to the study: postsecondary data from MN Office of Higher Education and NSC, secondary school information from MN Department of Education, and UI data from the MN Department of Employment and Economic Development. These data cover students who fall into two of the three categories: all secondary school students who attended a public school in Minnesota, all students attending public and private 2 and 4-year institutions in Minnesota, and UI-covered earnings for individuals working in the state of Minnesota.

UI Data: For the longer-term outcomes of employment and earnings, MDRC plans to obtain Unemployment Insurance (UI) wage records from Minnesota. This data may be obtained directly from MN DEEDS or SLEDS (see above). Note that although UI records cover over 90 percent of

employment in a state, they do miss certain types of jobs, including self-employment, informal work, and federal government jobs.

Analysis Strategy

To estimate the effect of the opportunity to participate in the Wallin Scholars Program, a linear fixed-effects regression model will be used:

$$Y = \sum_{r=1}^{R} \alpha_r Block_r + \sum_{l=1}^{L} \gamma_l X_l + \beta T + \varepsilon. \qquad (1)$$

Here, Y represents a target outcome, such as credits earned, $Block_r$ is an indicator variable for random assignment block r, and X_l is student baseline characteristics l, including background characteristics that may be related to outcomes. T is an indicator variable for treatment assignment, with ε classically considered to be independent and identically distributed (iid) draws from a normal distribution with mean 0 and variance σ^2. We will use heteroskedastic robust standard errors to relax the iid assumption.

The Intent to Treat (ITT) estimate is of the average effect of *assigning* a student to the treatment group. Depending on the rates dropout from the program and the extent that necessary assumptions are likely met, instrumental variables will be used to estimate the Treatment on the Treated (TOT) effects, or the effect on those who took up the scholarship offer for at least one semester.

While covariates are not necessary for the impact estimates to be unbiased, they may explain variation in the outcome and in doing so improve the precision of the estimates. The model will include the following student-level covariates derived from data collected at baseline:

- Random assignment block
- Gender,
- Race/ethnicity,
- First-generation college student (Y/N)
- High school GPA
- Family AGI
- Others, depending on data, e.g., rural status.

Planned Sample Size and Minimum Detectable Effect (Sizes)

For the expected sample size of 1,600 students[3], the minimum detectable effect (MDE) on enrollment or college completion (or any given binary outcome) is about 6 percentage points, meaning the program would need to lead to an increase in completion rates by at least this amount for it to be detected as statistically significant at the 10 percent level. In other words, the MDE is the smallest true effect that has a good chance of being found statistically significant.

[3] Numbers are subject to change.

Although exploratory at this point, the MDE for annual earnings can also be calculated and depends on the expected variance of earnings in the absence of the program, which tends to increase as the follow-up period increases.[xii] Under certain assumptions, the MDE for earnings will range from $1,845 to $2,460. Assuming annual earnings in the first few years after college of about $50,000,[4] these MDEs represent increases of 3.7 percent to 4.9 percent.

Outcomes

Persistence: Persistence in college will be created using data on enrollment in each semester of follow-up. This outcome will be created using NSC and SLEDS data.

Degree attainment: Degree attainment, defined as receipt of either an associate or bachelor's degree, will be created using data from NSC and SLEDS.

Earnings and employment: Labor market outcomes will be measured using UI wage records (either from SLEDS or the MN DEED). Quarterly earnings amounts will help to define 1) whether the individual was employed in that quarter, and 2) total earnings. Quarterly data will be aggregated to create annual measures. Data on employment and earnings may also come from the student surveys.

Graduate school enrollment and completion: Graduate school outcomes will be obtained from NSC and will consist of 1) enrollment in graduate programs and 2) receipt of a postgraduate degree.

Participation in career preparation activities, self-reported student loan debt, savings, and economic well-being: Data on career preparation activities, student debt, savings, and well-being will be obtained from the student surveys.

Subgroup Definitions

The evaluation will estimate the Wallin Scholar Program's effect for specific subgroups, including program type (2- and 4-year programs), gender, race/ethnicity, first-generation status, high school GPA, Wallin track (traditional or pilot), and/or Wallin applicant ranking (if applicable). This analysis will be exploratory.

Weighting

Weighting will not be necessary in the planned analysis. Differential random assignment ratios by random assignment block will be accounted for with the inclusion in the impact model of random assignment block dummy variables.[4]

Attrition and Missing Data

The confirmatory outcome measures will be derived from the SLEDS and National Student Clearinghouse (NSC). These administrative records will be obtained for everyone in the evaluation sample and everyone in the evaluation sample will be included in the impact analyses. Consequently, attrition, differential attrition, and missing outcome data should not bias impact findings.

If a student cannot be found in the SLEDS or NSC databases, we will assume non-enrollment and no degree attainment based on the assumption that the student did not enroll at any college following random assignment. For students that are in the study but do not have records for a given period (for example, no enrollment record in a specific semester), we will assume non-enrollment and zero credit accumulation.

Similarly, if a student is not found on the UI wage records, it will be assumed that they did not work in a quarter and have zero earnings. It should be noted, however, that students may not be found in UI wage records for multiple reasons including: working outside of the state of Minnesota, working in jobs that do not report to state UI agencies such as self-employed individuals or those federally employed.

Missing values for baseline data being used as variables in the impact model will be handled using the dummy variable imputation method. If an observation is missing race, for example, the missing values will be imputed with the study average and that observation will be assigned a 1 for the race missing variables.

Accounting for Multiple Inference (Multiple Hypothesis Testing)

To reduce the risk of a false positive, we are pre-specifying two confirmatory outcomes in years 1 through 3, and one confirmatory outcome in years 4 and 5. Analyses for all other outcomes, and all subgroup analyses, will be considered exploratory and interpreted more cautiously. We will not adjust the p-values for multiple hypothesis testing in the confirmatory analysis. However, to aid with interpretation of the exploratory findings, as a sensitivity analysis we will adjust the p-values within domain for multiple hypothesis testing using the Westfall-Young

[4] In theory, this fixed-effects estimator is more precise than a weighted estimator but can be biased if effects vary across blocks. In practice, there is a negligible difference between the two methods. See: Miratrix, Luke W., Michael J. Weiss, and Brit Henderson. "An applied researcher's guide to estimating effects from multisite individually randomized trials: Estimands, estimators, and estimates." *Journal of Research on Educational Effectiveness* 14, no. 1 (2021): 270-308.

method.[xiii] These adjusted p-values will be used to inform the interpretation of the exploratory findings.

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[i] National Center for Education Statistics 2022b.
[ii] See NCES 2021 for national averages.
[iii] Scrivener, Susan and Michael J. Weiss. (2022)
[iv] Examples include Detroit Promise Path (Ratledge & Dai (2022)), CUNY ASAP (Scrivener et al. (2015)), ASAP Ohio (Hill, Sommo & Warner (2023)), Valley Initiative for Development and Advancement (Rolston, Copson, & Gardiner (2017)), the Dell Scholars program (Page, Castleman, Kehoe, & Sahadewo (2017)), Stay the Course (Evans, Kearney, Perry, & Sullivan (2020)), One Million Degrees (Bertrand et al. (2019); Hallberg, Hofmeister, Bertrand, & Morgan (2022)), and more (see Dawson, Kearney, & Sullivan (2021) for an overview). The programs listed here all have positive impacts on academic outcomes like retention and credit accumulation, and most have positive impacts on graduation, too. (Some studies are still in process and it is too soon to measure graduation impacts.)
[v] Chamberlain, A. & Parnell, A. (2022).
[vi] 2016. "Using Financial Aid to Speed Degree Completion."
[vii] Strawn, J. (2022).
[viii] List of partner high schools is available on Wallin's website. https://www.wallinpartners.org/schools.html

[ix] List of partner community colleges is available on Wallin's website. https://www.wallinpartners.org/schools.html
[x] Raudenbush, Martinez, & Spybrook. (2007).
[xi] H. Bloom et al. (2017).
[xii] Using data from the Ohio ASAP long-term follow-up study, we assume a standard deviation of annual earnings between $15,000 to $20,000.
[xiii] The Bonferroni method, which also adjusts p-values for the familywise error rate, is too conservative when outcomes are correlated with each other. The Westfall-Young method, which is based on bootstrapping, accounts for such correlations.