

Evaluation of the Hooks Academic Achievement and Mentoring Initiative

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Executive Summary. We conduct a quantitative impact evaluation of the Hooks Academic Achievement and Mentoring Initiative. Leveraging a rich set of data provided by the University's Office of Institutional Research (OIR) paired with enrollment data provided by HAAMI, this quantitative evaluation focuses on measuring causal effects, if any, of participation in HAAMI on undergraduate academic performance, undergraduate degree attainment, graduate school enrollment and degree attainment, and higher wages. Our approach leverages a matching methodology to rigorously compare HAAMI participants to highly similar, non-participating University of Memphis students.

We find strong evidence for effects of HAAMI participation on subsequent active student status, cumulative GPA, and graduate school enrollment, as well as evidence that HAAMI participation may lead to higher wages. We find limited evidence of an impact on undergraduate or graduate degree attainment. We include representative calculations below:

| Outcome | Statistically Significant Effect? | Definition | HAAMI Group | Comparison Group |
|--|-----------------------------------|--|-------------|------------------|
| Active Student Status | Yes | Enrolled full-time or has graduated, 3 academic terms after HAAMI enrollment | 67% | 59% |
| Cumulative GPA | Yes | Cumulative GPA, 2 academic terms after HAAMI enrollment | 2.67 | 2.57 |
| Undergraduate degree attainment | No [‡] | Ever graduated* | 61.3% | 54.6% |
| Graduate school enrollment | Yes | Ever enrolled in graduate school* | 23.4% | 13.0% |
| Graduate degree attainment | No | Ever attained graduate degree** | 8.2% | 6.6% |
| Wages | Marginal | Earned \$50k+ annualized wage in 2024Q2*** | 26.8% | 17.9% |

[‡] While undergraduate degree attainment for HAAMI members is greater than that for the comparison group of the general population of African American male undergraduate students, the estimated effect size is slightly below that needed to establish statistical significance, possibly due to sample size ($p=.101$).

*analysis includes students enrolled in HAAMI fall 2021 or before, and these students' matches in the comparison group **fall 2019 or before ***fall 2018 or before

About HAAMI. The Hooks Academic Achievement and Mentoring Initiative (HAAMI) is a student success initiative at the University of Memphis. Led by the University's Benjamin L. Hooks Institute for Social Change (Hooks Institute), the program seeks to improve graduation outcomes for historically underrepresented and first-generation undergraduate students at the University of Memphis by providing comprehensive support to foster student success and professional growth with supports in the areas of academic achievement, personal development, and career readiness. Serving a total of 229 students from fall 2015 to fall 2024, the program has historically targeted African American male undergraduate students.¹

About the Evaluation. Data from Hooks Institute's annual reports has historically shown positive outcomes of HAAMI participants relative to the broader African American male undergraduate student population attending the University of Memphis. However, a rigorous impact evaluation to quantify causal impacts of HAAMI programming has never been conducted.

Therefore, the Hooks Institute contracted with the University of Memphis Center for Community Research and Evaluation (CCRE) to conduct a rigorous quantitative impact evaluation of HAAMI. CCRE is a research center in the University's College of Arts and Sciences that specializes in providing interdisciplinary social science research and evaluation support for community projects. CCRE has conducted evaluations for dozens of local, state, and federal grants in the areas of education, public health, workforce development, and criminal justice.

Leveraging a rich set of data provided by the University's Office of Institutional Research (OIR) paired with enrollment data provided by HAAMI, this quantitative evaluation focuses on measuring causal effects, if any, of participation in HAAMI on undergraduate academic performance, likelihood of graduation, likelihood of graduate school enrollment, and higher wages.

The evaluation was funded by several grants received by the Hooks Institute, including capacity-building grants from the Community Foundation of Greater Memphis and the Memphis City Council. The research protocol was approved by the University of Memphis IRB on October 15, 2024 (#PRO-FY2025-139).

Data Sources. CCRE obtained a variety of data from OIR on 8,917 Black male undergraduate students at the University of Memphis. The data includes the following parameters from fall 2014 to spring 2025:

- Student academic data by semester at the University of Memphis, including academic classification, full/part time status, attempted and earned credit hours (term and cumulative), GPA (term and cumulative), degree and major, online student status, and Lambuth student status
- Student demographic data such as age and first-generation student status
- Student financial data, including scholarship, loan, and Pell grant receipt
- Student activity data, including data on membership in student organizations, student success initiatives, residence life, and recreational center attendance
- Tennessee wage data from the Tennessee Department of Labor and Workforce Development, by calendar year quarter, through the second quarter of 2024

¹ While HAAMI, branded as the Hooks African American Male Initiative during the implementation period evaluated here, was established to provide support and mentoring for African American male undergraduate students, membership has been open to all, with no restrictions based on demographic characteristics.

- Undergraduate graduation outcomes and graduate-level enrollment/graduation outcomes, using both University of Memphis data and National Student Clearinghouse data

This data was paired with Hooks Institute data reporting which semester(s) each participant was enrolled in HAAMI.

Research Design: Identification of Treatment and Comparison Groups. As students self-select into HAAMI and are not randomly drawn from the student population, statistical adjustment is required to control for observable factors associated with the decision to apply for and participate in HAAMI. Therefore, we use a matching method to construct a comparison group of students with which the outcomes of HAAMI students can be compared.

Using the *matchit* package in R, we use greedy nearest-neighbor Mahalanobis distance matching to match HAAMI participants to similar non-participants. The treatment group consists of HAAMI participants meeting the inclusion criteria, with time-varying variables calculated in reference to the semester that the student first enrolls in HAAMI. Of 229 individuals enrolling in HAAMI from fall 2015 to fall 2024, 20 were excluded by OIR for failure to meet the inclusion criteria,² resulting in a treatment group sample size of 209. Counts by semester are shown in Tables 1 and 2.

Table 1. Total number of HAAMI participants by first semester of HAAMI enrollment ($n=229$).

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------|------|------|------|------|------|------|------|------|------|------|
| Spring | | 2 | 1 | 4 | 10 | 14 | 8 | 15 | 4 | 5 |
| Fall | 7 | 20 | 28 | 14 | 16 | 1 | 9 | 40 | 13 | 18 |

Table 2. Number of HAAMI participants dropped from analysis due to exclusion by OIR ($n=20$).

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--------|------|------|------|------|------|------|------|------|------|------|
| Spring | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 0 | 0 |
| Fall | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 4 | 3 | 3 |

The comparison group consists of similarly situated individuals who never enroll in HAAMI. To construct the comparison group, data is calculated for all comparison group student-terms, and treatment group individuals are matched to the closest comparison group student-term matches. The matching method is implemented such that no non-participant is matched twice. A five-to-one ratio is used, meaning that each participant is matched to five comparison students. Exact matches are required for the reference semester, as well as on a binary variable indicating whether the student earned any credit hours in the most recent fall or spring semester. Table 3 reports all variables used in the matching algorithm, as well as the mean value for each variable before and after matching. We also report the standardized mean difference (SMD). After matching, the SMD of all variables is less than 0.1, a common heuristic to assess the balance of matched samples.³

² Students likely do not meet the inclusion criteria due to non-Black race (2 or more races). Unknown sex or non-regular student status may also result in sample exclusion.

³ Austin, Peter C. 2009. Balance diagnostics for comparing the distribution of baseline covariates between treatment groups in propensity-score matched samples. *Statistics in Medicine* 28(25), 3083-3107.

| Table 3. Balance of Pre-Treatment Variables Before and After Matching. | Before matching | | | After matching | | |
|---|-----------------|---------|--------|----------------|---------|--------|
| | Treated | Control | SMD | Treated | Control | SMD |
| <i>N (student-terms)</i> | 209 | 42,082 | | 209 | 1,045 | |
| Ever a full-time student | 96.7% | 91.0% | 0.315 | 96.7% | 97.5% | -0.048 |
| Age | 22.1 | 23.5 | -0.183 | 22.1 | 21.4 | 0.081 |
| First generation | 59.8% | 53.7% | 0.125 | 59.8% | 58.2% | 0.033 |
| Received Pell Grant during term | 77.0% | 61.9% | 0.360 | 77.0% | 76.5% | 0.014 |
| Received student loan during term | 74.6% | 63.1% | 0.264 | 74.6% | 76.7% | -0.048 |
| Term GPA, previous term** | 2.49 | 2.45 | 0.036 | 2.49 | 2.51 | -0.013 |
| Cumulative GPA, previous term** | 2.66 | 2.60 | 0.079 | 2.66 | 2.66 | 0.005 |
| Total earned hours to date | 42.1 | 63.5 | -0.633 | 42.1 | 44.6 | -0.074 |
| # earned hours, previous main term | 7.74 | 9.08 | -0.206 | 7.74 | 7.94 | -0.030 |
| % earned hrs. in most recent main term completed online | 7.6% | 18.1% | -0.551 | 7.6% | 7.9% | -0.015 |
| % attempted hours online, current term | 13.2% | 31.1% | -0.772 | 13.2% | 14.7% | -0.062 |
| Ever received scholarship to date, including current term | 73.2% | 54.3% | 0.428 | 73.2% | 70.1% | 0.069 |
| Member of registered student organization, prior term | 21.5% | 9.4% | 0.296 | 21.5% | 18.7% | 0.070 |
| Use of recreational center 2+ times, current term | 14.4% | 14.6% | -0.007 | 14.4% | 13.6% | 0.022 |
| On-campus residence, current term | 20.1% | 10.9% | 0.229 | 20.1% | 18.9% | 0.029 |
| Part-time student | 10.5% | 31.9% | -0.696 | 10.5% | 8.5% | 0.065 |
| Lambuth student, current term | 1.9% | 2.8% | -0.064 | 1.9% | 1.9% | -0.000 |
| Class level (1=freshman, 4=senior), current term | 2.00 | 2.59 | -0.565 | 2.00 | 2.07 | -0.068 |
| Student type "Continuing" | 67.0% | 77.7% | -0.228 | 67.0% | 67.3% | -0.006 |
| Student type "First Time Transfer" | 10.0% | 6.6% | 0.114 | 10.0% | 10.1% | -0.003 |
| Student type "New First Time Freshman" | 19.1% | 8.7% | 0.266 | 19.1% | 19.1% | -0.000 |
| Student type "Readmitted" | 3.3% | 6.0% | -0.148 | 3.3% | 3.0% | 0.021 |
| Seeking BA degree | 24.9% | 19.2% | 0.130 | 24.9% | 22.5% | 0.055 |
| Seeking BBA degree | 16.7% | 20.1% | -0.089 | 16.7% | 17.5% | -0.021 |
| Seeking BS degree | 35.9% | 31.8% | 0.085 | 35.9% | 37.5% | -0.034 |
| No major | 12.0% | 13.6% | -0.050 | 12.0% | 12.4% | -0.015 |
| Seeking other degree | 10.5% | 15.3% | -0.155 | 10.5% | 10.0% | 0.016 |
| Earned any hours during most recent main term* | 65.6% | 72.0% | -0.136 | 65.6% | 65.6% | -0.000 |

*exact matching is used for starred variable **GPA data from current term used if no previous term

Participants are also exact matched on the reference term (term of HAAMI enrollment for participants). Main term = fall, spring

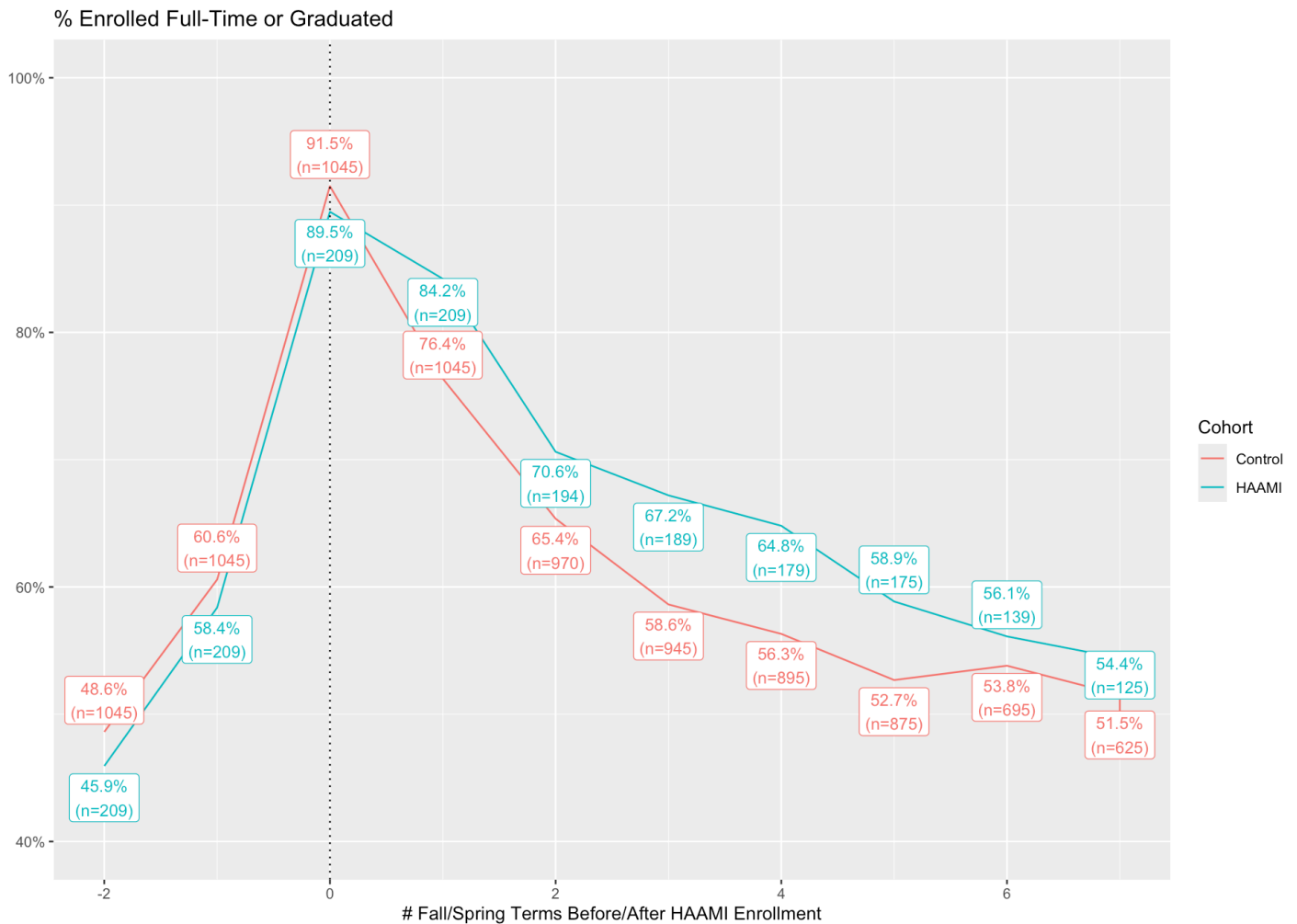
Student type "Other" also matched upon (SMD before matching -0.078, after matching 0.000), omitted from table due to n<5 for the treated cohort.

Research Design: Measurement of Key Outcomes. We conduct a series of analyses to examine key outcome metrics for the identified cohort of HAAMI participants as well as for the comparison group. We consider the following outcomes:

- **Active (/graduated) student status:** whether a student is enrolled in full-time coursework during the academic semester at the University of Memphis, or has graduated from any undergraduate institution during the current semester or any prior semester.
- **Cumulative grade point average:** a student's University of Memphis cumulative grade point average at the end of the semester.
- **Undergraduate degree attainment (graduation):** whether a student graduates with an undergraduate degree from the University of Memphis or elsewhere.
- **Enrollment in graduate school:** whether a student enrolls in graduate school at the University of Memphis or elsewhere.
- **Graduate degree attainment (graduation):** whether a student attains a graduate degree at the University of Memphis or elsewhere.
- **Earnings from employment:** whether a student earns at least a \$50,000 annualized wage from a Tennessee employer in the second quarter of 2024.

To ensure that calculations are comparable across time, we calculate each metric relative to a reference academic semester. For each treatment group student, this is simply the semester of initial HAAMI enrollment. For each matched comparison student, the corresponding reference semester is the academic semester of their matched treatment counterpart. This ensures that outcomes are evaluated relative to the same academic point in time across both groups. Semesters are ordered sequentially, such that the reference semester is defined as semester=0. For outcome calculations, we only consider the fall and spring semesters and do not include summer terms.

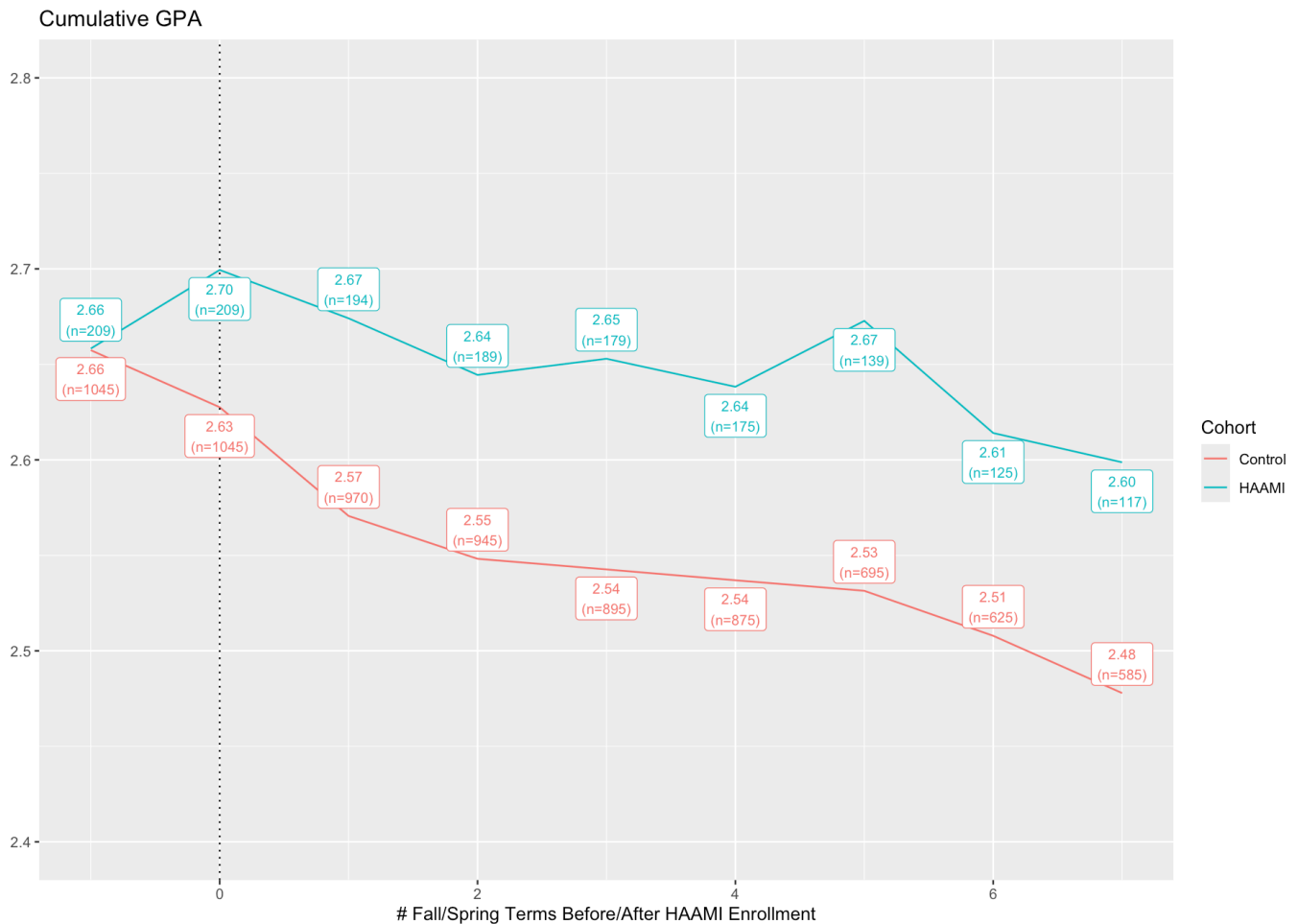
Outcome 1: Active (/Graduated) Student Status. For each participant-semester, we calculate whether each student is either enrolled as a full-time student during the semester, or graduates with an undergraduate degree from any university during the semester or any prior semester. Below, we report this measure for a ten-semester period. The results indicate that students are more likely to remain on-track for graduation after enrollment in HAAMI.



Using the above visualized semesters, we estimate the causal effect of HAAMI participation on active/graduated student status using a difference-in-differences regression model.⁴ The model suggests that HAAMI participation is associated with an **7.3% increase** in the absolute probability of on-track status for the four academic semesters following enrollment. This increase is statistically significant ($p=.023$).

⁴ We use a two-way fixed effects model, estimating a linear probability model of on-track status on an interaction between a post-treatment indicator ($t > 0$) and treatment group status, controlling for student and time fixed effects. Standard errors are clustered at the unit level to account for serial correlation. This approach assumes that trends for the two groups would be parallel absent intervention.

Outcome 2: Cumulative Grade Point Average. For each participant-semester, we compute the cumulative grade point average of each student.⁵ Although cumulative GPAs between the two groups are highly similar prior to HAAMI enrollment, the two groups diverge beginning with the semester of HAAMI participation. The increased GPA level appears to persist for the remainder of one's enrollment at the University of Memphis.



We estimate a difference-in-differences regression model to estimate the causal effect of HAAMI on cumulative GPA for the above visualized set of academic semesters.⁶ The analysis suggests that HAAMI participation is associated with an **0.08-point increase** in GPA for the seven academic terms following enrollment. This increase is statistically significant ($p=.0153$). To put this into context, for a student with 120 earned hours of coursework, an impact of 0.08 GPA points is approximately equal to earning one letter grade higher on three 3-hour courses.

⁵ Cumulative GPA is computed for all student-terms even if the student is not enrolled during the semester in question. For students who matriculate during the term of HAAMI enrollment (reference semester), the cumulative GPA in the term prior to matriculation is imputed using the cumulative GPA in the reference semester.

⁶ We use a two-way fixed effects model, estimating a linear regression model of cumulative GPA on an interaction between a post-treatment indicator ($t \geq 0$) and treatment group status, controlling for student and time fixed effects. Standard errors are clustered at the unit level to account for serial correlation. This approach again assumes that trends between the two groups would be parallel absent intervention.

Outcome 3. Graduation (undergraduate degree attainment). Next, we compute the share of students in each group that attains an undergraduate degree at any university. We consider graduation rates for students with a reference semester of fall 2021 or earlier – that is to say, we include only students who first enroll in HAAMI in fall 2021 or earlier, and those students’ comparison group matches. **We find that 61.3% of the HAAMI group (n=111) graduates with an undergraduate degree, versus 54.6% for the comparison group (n=555) – a difference of 6.7%.**

To identify whether this difference is statistically significant, we conduct a logistic regression of graduation on HAAMI status. Consistent with best practice,⁷ we also control for all variables included in the matching algorithm. Although the direction of the estimated effect is suggestive of impact, we do not find a statistically significant effect of HAAMI participation on graduation ($p=.101$).

Outcome 4. Enrollment in graduate school. Next, we compute the share of students in each group that enrolls in a graduate program at any university. Like the previous analysis, we only consider students with a reference semester of fall 2021 or earlier. **We find that 23.4% of the HAAMI group (n=111) enrolled in a graduate program, nearly double the comparison group (n=555) rate of 13.0%.**

To identify whether this difference is statistically significant, we conduct a logistic regression of graduate school enrollment on HAAMI status. Except for the outcome variable, the model is specified identically to our model on undergraduate graduation. The results indicate a statistically significant association between HAAMI participation and graduate school enrollment; HAAMI participation is associated with **136% increase in the odds** of graduate school enrollment ($p = .003$, coefficient 0.8596, odds ratio 2.3622).

Outcome 5. Attainment of graduate degree. Next, we compute the share of students who attain a graduate degree at any university, among students with a reference semester of fall 2019 or earlier. **We find that 8.2% of the HAAMI group (n=73) attained a graduate degree, slightly exceeding the comparison group (n=365) rate of 6.6%.** A logistic regression analysis, specified analogously to the previous two models, does not indicate that this difference is statistically significant.

Outcome 6. Wages. Finally, to assess long-term earnings, we compute a binary indicator for whether an individual earned annualized wages in Tennessee of at least \$50,000 (quarterly wage \$12,500) in the second quarter of 2024. We consider students with a reference semester of fall 2018 or earlier. Due to the limitations of our data, we are limited to Tennessee wages, which can be problematic given that Memphis borders two states; however, to ensure that all matched groups are included, we include all participants even if they do not earn any wage in Tennessee during the quarter. **We find that 26.8% of the HAAMI group (n=56) earned an annualized Tennessee wage of at least \$50,000, versus 17.9% of the comparison group (n=280).**

⁷ Ho, Daniel E. et al. 2007. “Matching as Nonparametric Processing for Reducing Model Dependence in Parametric Causal Inference.” *Political Analysis* 15: 199-236.

To identify whether this difference is statistically significant, we conduct a logistic regression of binary wage outcome on HAAMI status. This model is specified identically to the previous logistic models. The regression analysis is suggestive of a causal impact, but the result is significant only at the 90% confidence level but not the conventional 95% level ($p=.077$). However, the estimated effect size is quite large: the model suggests that participation in HAAMI is associated with a **92.8% increase in the odds** of earning a high wage (coefficient 0.6564, odds ratio 1.9278).

Discussion. These findings suggest that HAAMI effectively supported its target undergraduate population at the University of Memphis, promoting student persistence with positive findings on a battery of medium- and long-term outcomes. Although not all outcomes were statistically significant, the magnitude and direction of all estimated analyses are encouraging and consistent with a positive program impact. The statistically significant estimated impacts of HAAMI participation on active student status and cumulative GPA are quite promising; however, the most compelling finding may be the strong predicted effect on *graduate school enrollment*, with HAAMI students enrolling in graduate school at nearly double the rate of non-participants. This may be a worthwhile area of further qualitative study to unpack the program elements that have been strongly supportive of graduate school enrollment. We note that while we do not currently see a statistically significant effect on graduate *degree attainment*, this may be simply due to the limited sample size for this longer-term outcome. One suggestion is to repeat the analysis in 3-5 years to more reliably estimate graduate degree completion.

In addition to the sample size issue for longer-run outcomes, we also note one additional limitation in the analysis. While we control for observable pre-intervention factors as best as possible, we cannot precisely control for all social-emotional or other factors that may contribute to the decision to enroll in HAAMI that could also be correlated with later academic or wage outcomes. Unfortunately, this is an unavoidable limitation of all impact studies that do not use randomization to enroll prospective participants.