

The Power of Certainty: Experimental Evidence on the
Effective Design of Free Tuition Programs
ONLINE APPENDIX

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Appendix A. Intervention Materials

Exhibit 1 HAIL Student Letter

September 11, 2019

<<First_Name>> <<Last_Name>>
<<Person_Address1>>
<<Person_Address2>>
<<Person_City>>, <<Person_State>> <<Person_Postal>>

Dear <<First_Name>>,

As you are thinking about life after your senior year, we hope you are considering and will apply to the University of Michigan. You can put your incredible talents to work here in Ann Arbor – relatively close to home – where you will be surrounded by professors and resources to help you during your journey.

We believe you to be an academically excellent student who has worked hard for your achievements. If you apply to U-M and are admitted for the fall 2020 term, we will reward your hard work with the **HAIL Scholarship**, which covers the full cost of your in-state tuition for four years of study at our Ann Arbor campus. That's an approximate \$66,000 value to you and your family.

Additionally, after a review of your financial aid applications, you will likely be eligible for additional aid to cover costs of housing, meals, textbooks, and other expenses.

The University of Michigan is an outstanding advantage for families in our state. Among all Michigan colleges, U-M students are the most likely to earn their degree, with 92% graduating in six years. When they do, they join a global base of more than 580,000 alumni who are eager to help them make connections and advance in their careers. Importantly, students who hold a U-M bachelor's degree earn 22% more annually than the national median, or \$61,099, within five years after graduation. And 10 years after graduation that number rises to more than \$85,000.

<<First_Name>>, please take a look at the enclosed materials and discuss this outstanding offer with your family. We look forward to receiving your application, with the fee waived, preferably by our Early Action deadline of November 1.

Similarly, please begin submitting your financial aid documents as of Oct. 1, when the FAFSA and CSS Profile become available. You do not need to wait until your application is complete to submit these documents. More information about applications to the university and for financial aid can be found at admissions.umich.edu.

Additionally, you may reach out with admissions questions to Dustin Castro in the Office of Undergraduate Admissions at 734-615-4008 or dcastro@umich.edu; or with financial aid questions to Raquel Arevalo in our Office of Financial Aid at 734-763-6600 or arevalor@umich.edu.

Go Blue!

Dr. Mark Schlissel
President

Exhibit 2
Go Blue Encouragement Student Letter

September 11, 2019

<<First_Name>> <<Last_Name>>
<<Person_Address1>>
<<Person_Address2>>
<<Person_City>>, <<Person_State>> <<Person_Postal>>

Dear <<First_Name>>,

As you are thinking about life after your senior year, we hope you are considering and will apply to the University of Michigan. You can put your incredible talents to work here in Ann Arbor – relatively close to home – where you will be surrounded by professors and resources to help you during your journey.

We believe you to be an academically excellent student who has worked hard for your achievements. That's why we hope you are planning to apply to the University of Michigan. Furthermore, our **Go Blue Guarantee** can help you with your college costs, as it covers the full cost of in-state tuition for in-state students who are admitted to the Ann Arbor campus and whose families earn incomes of \$65,000 or less, with \$50,000 or less in assets. If your family earns more, you can still Go Blue; we provide tuition support for families with incomes up to \$180,000.

The University of Michigan is an outstanding advantage for families in our state. Among all Michigan colleges, U-M students are the most likely to earn their degree, with 92% graduating in six years. When they do, they join a global base of more than 580,000 alumni who are eager to help them make connections and advance in their careers. Importantly, students who hold a U-M bachelor's degree earn 22% more annually than the national median, or \$61,099, within five years after graduation. And 10 years after graduation that number rises to more than \$85,000.

<<First_Name>>, please take a look at the enclosed materials and discuss this outstanding offer with your family. We look forward to receiving your application, with the fee waived, preferably by our Early Action deadline of November 1.

Similarly, please begin submitting your financial aid documents as of Oct. 1, when the FAFSA and CSS Profile become available. You do not need to wait until your application is complete to submit these documents, and may receive additional aid to cover costs of housing, meals, textbooks, and other expenses. More information about applications to the university and for financial aid can be found at admissions.umich.edu.

Additionally, you may reach out with admissions questions to Dustin Castro in the Office of Undergraduate Admissions at 734-615-4008 or dcastro@umich.edu; or with financial aid questions to Jim Eddy in our Office of Financial Aid at 734-763-8424 or afa-go.blue.guarantee@umich.edu.

Go Blue!

Dr. Mark Schlissel
President

Exhibit 3
HAIL Foldout (first page)

STEP 1

BECOMING A WOLVERINE

STEP 2

STEP 3

PREPARE & RESEARCH

APPLY

ATTEND WITH FREE TUITION

FEE WAIVER: COLLEGE APPLICATION

NO FEE: FAFSA (FREE APPLICATION FOR FEDERAL STUDENT AID)

FEES WAIVER: CSS PROFILE

ACADEMIC UNITS THAT ADMIT/ENROLL FRESHMEN:

- College of Literature, Science, and the Arts
- Taubman College of Architecture and Urban Planning
- College of Engineering
- School of Nursing
- School of Music, Theatre & Dance
- School of Kinesiology
- Stamps School of Art & Design
- Ross School of Business

YOUR TRANSCRIPT: The official document issued by your high school that shows your grades, GPA, class ranking, etc.

STANDARDIZED TEST SCORES: Scores you received on your SAT or ACT. When you take the test, you arrange to have your scores sent to U-M using our code number in the blank: ACT code 2052, SAT code 1839.

ESSAYS: These are part of your admissions application; essays are a personal statement where you respond to questions posed by the university and tell a little bit about yourself. They give the university some insight into your character and personality.

LETTERS OF RECOMMENDATION: Letters from adults you know in a professional capacity, like teachers or counselors, which are written in support of your character and qualifications as a college student.

Questions about applying to U-M? Please contact Dustin Castro in the Office of Undergraduate Admissions at 734-615-4008.

The Common App is available online at: commonapp.org

The Coalition App is available online at: coalitionforcollegeaccess.org

There is a fee for filling out either application. However, by checking the "fee waiver" box, the fee will be waived.

The form can be accessed online at: fafsa.gov

On the FAFSA, there will be a space for U-M's Federal Code which is 002325.

There is never a fee to fill out the FAFSA.

You can find the CSS Profile at: cssprofile.collegeboard.org

On the CSS Profile, there will be a space for U-M's Code which is 1839.

You may be offered a fee waiver while completing this application. If you are not, please contact the Office of Financial Aid at 734-763-6600.

HAIL Foldout (second page)



The HAIL Scholarship is brought to you by:

OFFICE OF UNDERGRADUATE ADMISSIONS
UNIVERSITY OF MICHIGAN

OFFICE OF FINANCIAL AID
UNIVERSITY OF MICHIGAN

THE VALUE OF A MICHIGAN DEGREE

The University of Michigan is consistently ranked as one of the top 25 universities worldwide, and as the No. 1 public research university in the U.S.

We appreciate our rankings, but we value student success even more. At Michigan, you'll stay, graduate, and become a member of the world's largest living alumni group.

M Our freshman retention rate is 97%, compared to the national rate of 79%.
(Our students like it here!)

Speaker Our graduation rate is 92%, compared to the national average of 59%. (Our students learn—and go on to great things!)

Graduation cap After graduation, you'll become part of an incredibly large, supportive network of alumni from all over the world. Anywhere you go, you're likely to meet a proud Wolverine. GO BLUE!

U-M offers all this and better lifetime earnings, too.

By 2020, 65% of job openings will require workers with at least some college education.

Georgetown University Center on Education and the Workforce Recovery 2020 Report

\$85,000

\$61,099

Average earnings of U-M Bachelor's Degree grads after 5 years

Average earnings of U-M Bachelor's Degree grads after 10 years

Department of Education (2019)

Learn more and register for a **free** U-M e-book:
<>purl>>

HAIL: High-Achieving Involved Leader
A scholarship at the University of Michigan for students like you who are intent on reaching their full potential at a school with the resources and support to help them succeed.

CSS PROFILE
The CSS Profile is a financial aid application that allows us to determine eligibility for U-M gift aid and scholarships. This money can be used to pay for expenses other than tuition and does not have to be paid back.



FAFSA (FREE APPLICATION FOR FEDERAL STUDENT AID)
This is the application used to determine eligibility for federal, state, and college-sponsored financial aid, including grants, educational loans, and Work-Study programs. This money can be used to pay for expenses other than tuition.



COLLEGE APPLICATION
The Common Application and Coalition Application are online college applications used by U-M. Students enter basic information and statistics into either application, and meet the school's particular requirements—like the additional essays.



Exhibit 4
Go Blue Encouragement Foldout (first page)



UNIVERSITY OF MICHIGAN

BECOMING A WOLVERINE

STEP 1

PREPARE & RESEARCH

STEP 2

At Michigan, you apply to one specific school or college, or apply for dual enrollment in two schools or colleges.

ACADEMIC UNITS THAT ADMIT/ENROLL FRESHMEN:

- College of Literature, Science, and the Arts
- College of Engineering
- School of Music, Theatre & Dance
- Stamps School of Art & Design
- Taubman College of Architecture and Urban Planning
- School of Nursing
- School of Kinesiology
- Ross School of Business

APPLY

You can apply to Michigan online now by submitting the Common App (commonapp.org) or the Coalition App (coalitionforcollegeaccess.org).*

*Students should only complete one application. We will evaluate the applications equally, and neither application gives a prospective student an advantage. If you are an international student, consider utilizing MyCoalition, a support platform that can assist you in your college search and application process.

We will waive the application fee. Just check the fee waiver request box on the application.

YOUR TRANSCRIPT: The official document issued by your high school that shows your grades, GPA, class ranking, etc.

STANDARDIZED TEST SCORES: Scores you received on your SAT or ACT. If you took only one test, you'll have to have the scores sent directly to U-M by your test code number in the blank: ACT code: 2062 SAT code: 1839

ESSAYS: These are part of your admissions application; essays are a personal statement where you respond to prompts from the university and tell a little bit about yourself—it gives the university some insight into your character and personality.

LETTERS OF RECOMMENDATION: Letters from adults you know in a professional capacity, like teachers or counselors, which are written in support of your character and qualifications as a college student.

STEP 3

How we review:
Yes, we want excellent grades and academic rigor, but we also look for students who seek new experiences and are willing to take on new challenges. So we look at your life outside the classroom—clubs, sports, and after-school jobs.

Questions about applying to U-M? Please contact Dustin Castro in the Office of Undergraduate Admissions at 734-615-4008.

GO BLUE GUARANTEE

FREE TUITION FOR FAMILIES WITH INCOMES \$65,000 & UNDER ASSETS BELOW \$50,000

FOUR YEARS FOR QUALIFYING IN-STATE STUDENTS ANN ARBOR CAMPUS

TUITION SUPPORT FOR FAMILIES WITH INCOMES UP TO \$180,000

You do not have to apply specifically for the Go Blue Guarantee. The Go Blue Guarantee is automatically awarded to qualified Michigan residents who:

1. Apply to U-M
2. Get admitted
3. Apply for financial aid by March 31

It's that simple.

goblueguardian.umich.edu

FEE WAIVER: COLLEGE APPLICATION

The Common App is available online at: commonapp.org
The Coalition App is available online at: coalitionforcollegeaccess.org

There is a fee for filling out either application. However, by checking the "fee waiver" box, the fee will be waived.

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You can find the CSS Profile at: cssprofile.collegeboard.org

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You may be offered a fee waiver while completing this application. If you are not, please contact the Office of Financial Aid at 734-763-6600.

Go Blue Encouragement Foldout (second page)

The Go Blue Guarantee is brought to you by:

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FREE TUITION
FOR FAMILIES WITH
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ASSETS BELOW \$50,000

TUITION SUPPORT
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INCOMES UP TO \$180,000

FOUR YEARS FOR QUALIFYING IN-STATE STUDENTS | ANN ARBOR CAMPUS

OFFICE OF UNDERGRADUATE ADMISSIONS
UNIVERSITY OF MICHIGAN

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We appreciate our rankings, but we value student success even more. At Michigan, you'll stay, graduate, and become a member of the world's largest living alumni group.

M Our freshman retention rate is 97%, compared to the national rate of 79%.
(Our students like it here!) **\$85,000**

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U-M offers all this and better lifetime earnings, too.

By 2020, 65% of job openings will require workers with at least some college education.

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Average earnings of U-M Bachelor's Degree grads after 5 years

Average earnings of U-M Bachelor's Degree grads after 10 years

Learn more and register for a free U-M e-book:

<<purl>>

GO BLUE GUARANTEE

The Go Blue Guarantee is our commitment to keeping a world-class education affordable and accessible for all Michigan residents pursuing undergraduate study on our Ann Arbor campus.

CSS PROFILE
The CSS Profile is a financial aid application that allows us to determine eligibility for U-M gift aid and scholarships. This money can be used to pay for expenses other than tuition and does not have to be paid back.

FAFSA (FREE APPLICATION FOR FEDERAL STUDENT AID)
This is the application used to determine eligibility for federal, state, and college-sponsored financial aid, including grants, educational loans, and Work-Study programs. This money can be used to pay for expenses other than tuition.

COLLEGE APPLICATION
The Common Application and Coalition Application are online college applications used by U-M. Students enter basic information and statistics into either application, and meet the school's particular requirements—like the additional essays.

Appendix B. Appendix Tables and Figures

Appendix Table 1
School-Level Balance

Characteristic	(1) Control	(2) HAIL	(3) GB Encour.	(1) vs. (2) P-value	(1) vs. (3) P-value	(2) vs. (3) P-value	Joint F-test P-value
Pred. prob. of highly selective college attendance	0.13 (0.13)	0.13 (0.12)	0.13 (0.12)	0.81	0.58	0.43	0.71
School in UP	0.15 (0.36)	0.18 (0.38)	0.15 (0.36)	0.52	1.00	0.52	0.76
Town/rural school	0.53 (0.50)	0.53 (0.50)	0.52 (0.50)	1.00	0.78	0.77	0.95
Suburban school	0.35 (0.48)	0.35 (0.48)	0.36 (0.48)	1.00	0.78	0.77	0.95
Distance of school from UM (miles)	98.9 (86.74)	104.1 (86.65)	97.5 (75.65)	0.55	0.85	0.39	0.68
UM application rate of school, class of 2015	0.07 (0.08)	0.07 (0.10)	0.06 (0.09)	0.89	0.60	0.56	0.81
Average ACT score of school, class of 2015	19.96 (1.85)	19.92 (2.06)	19.89 (2.07)	0.85	0.74	0.92	0.94
Proportion of sample students with A or A+ GPA	0.86 (0.24)	0.87 (0.22)	0.84 (0.26)	0.74	0.47	0.30	0.56
Proportion of sample students with A-, B+, or B GPA	0.14 (0.24)	0.13 (0.22)	0.16 (0.26)	0.68	0.52	0.29	0.57
Average SAT of sample students	1260 (71.14)	1264 (72.77)	1262 (61.83)	0.55	0.86	0.65	0.83
Proportion female	0.56 (0.35)	0.55 (0.36)	0.57 (0.34)	0.71	0.87	0.59	0.86
Proportion under-represented minority	0.17 (0.28)	0.15 (0.27)	0.18 (0.29)	0.59	0.63	0.31	0.59
Proportion eligible for free lunch	0.80 (0.28)	0.81 (0.25)	0.79 (0.28)	0.70	0.71	0.43	0.74
Average number of sample students	3.8 (3.50)	3.7 (3.19)	3.7 (3.51)	0.79	0.76	0.96	0.95
Overall F-test p-value				1.00	1.00	0.93	
Number of schools	159	159	159	318	318	318	477
Number of students	610	595	591	1,205	1,201	1,186	1,796

Notes: All analyses conducted at the school level. P-values for each pair of treatment arms are from a t-test of the coefficient on treatment status from a regression of the characteristic on treatment and strata dummies. The joint F-test p-value for each characteristic is from a joint significance test of the coefficients on treatment dummies from a regression of the characteristic on treatment and strata dummies, run on all treatment arms. For each pair of treatment arms, the overall F-test p-value is from a joint significance test predicting treatment based on the characteristics listed here, excluding the summary index, as well as strata dummies. Standard deviations in parentheses. All regressions use robust standard errors. We rerandomized to achieve balance within region on all listed school characteristics, except the summary index and the proportion eligible for free lunch. Summary index calculated from parameters of an OLS regression estimating the relationship between observable characteristics and a binary indicator for attending a college as competitive as the University of Michigan. “Under-represented minority” includes all students who are Black, Hispanic, American Indian, or Native Hawaiian or Pacific Islander.

Source: [Michigan Department of Education \(2022\)](#), [University of Michigan Office of Enrollment Management \(2022\)](#).

Appendix Table 2
Applicant Characteristics by Treatment Arm

Characteristic	Control	HAIL	GB Encour.	Control vs. HAIL P-value	Control vs. GBE P-value	HAIL vs. GBE P-value
Pred. prob. of highly selective college attendance	0.23	0.16	0.19	0.00	0.05	0.29
School in UP	0.07	0.14	0.07	0.07	0.77	0.10
Town/rural school	0.31	0.37	0.38	0.55	0.16	0.38
Suburban school	0.44	0.43	0.34	0.31	0.02	0.33
Distance of school from UM (miles)	78.0	89.8	73.3	0.24	0.67	0.08
UM application rate of school, class of 2015	0.11	0.08	0.11	0.34	0.76	0.53
Average ACT score of school, class of 2015	20.64	20.49	20.41	0.72	0.47	0.93
A or A+ GPA	0.90	0.87	0.89	0.22	0.70	0.52
A-, B+, or B GPA	0.10	0.13	0.10	0.25	0.78	0.48
SAT	1309	1285	1289	0.01	0.02	0.63
Female	0.54	0.55	0.55	0.94	0.79	0.93
Under-represented minority	0.18	0.15	0.18	0.53	0.97	0.66
Eligible for free lunch	0.83	0.76	0.81	0.05	0.64	0.24
Average number of sample students at school	7.6	6.6	7.5	0.51	0.86	0.65
Overall F-test p-value				0.00	0.02	0.00
Application rate	0.38	0.63	0.46			
Number of students	229	373	269			

Notes: All analyses conducted at the student level. Treatment arm comparison p-values and overall F-test p-value computed as in Appendix Table as in Appendix Table 1. All variables defined as in Appendix Table 1.

Source: [Michigan Department of Education \(2022\)](#), [University of Michigan Office of Enrollment Management \(2022\)](#).

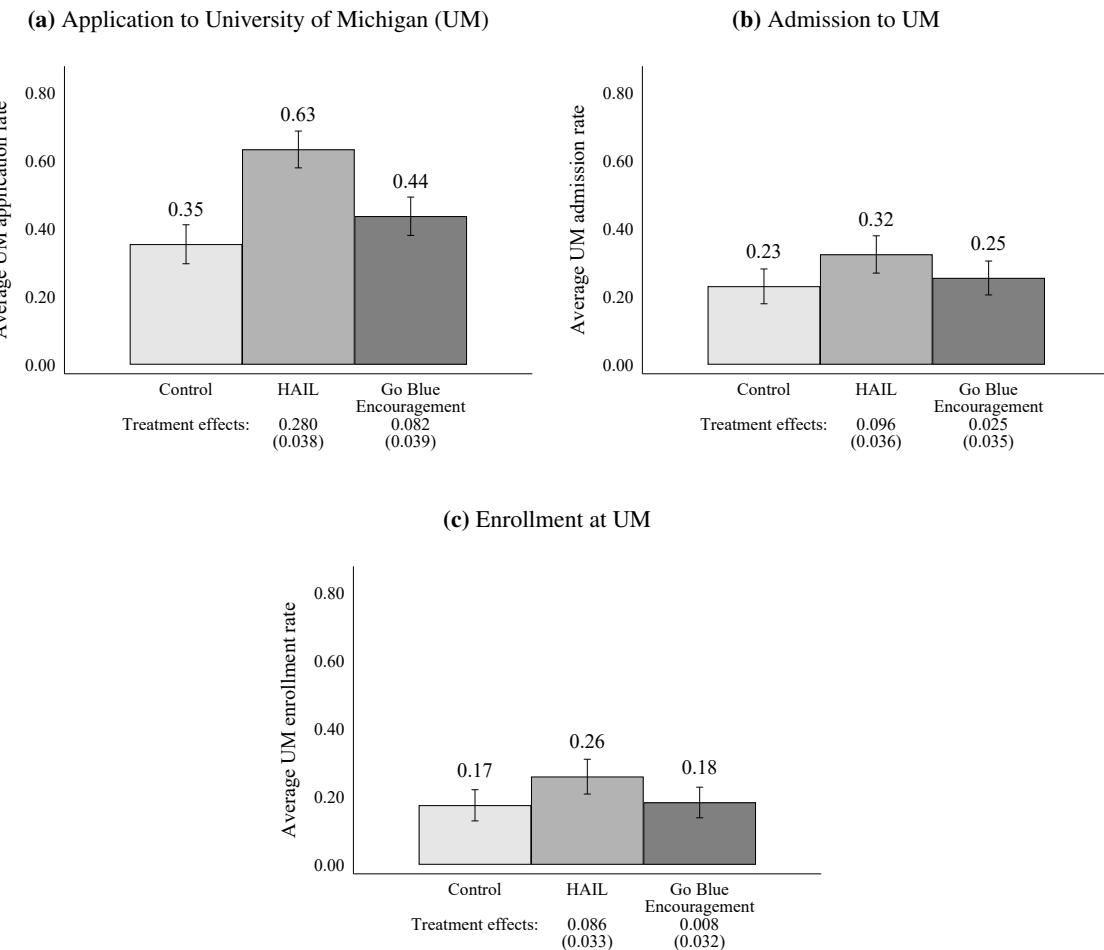
Appendix Table 3
Student Financial Aid Amounts by Treatment Arm

	Focal Cohort					
	First Year					
	Mean					
	Control	HAIL	GBE	H-C	GBE-C	H-GBE
Grants	\$25,432 (918)	\$26,676 (423)	\$25,172 (690)	\$1,244 (1014)	-\$260 (1152)	\$1,504 (812)
Loans	\$1,217 (412)	\$956 (184)	\$1,419 (346)	-\$261 (453)	\$202 (540)	-\$463 (393)
Proportion with Grants \geq Tuition	0.886 (0.034)	1.000 (0.000)	0.873 (0.035)	0.114 (0.034)	-0.013 (0.049)	0.127 (0.035)
Expected Family Contribution	\$2,336 (605)	\$2,481 (524)	\$2,464 (564)	\$145 (803)	\$129 (830)	\$17 (773)
Cost of Tuition			\$15,960 (132)			
Number of students	88	117	81			
Number of students in the study	610	595	591			

Notes: Analysis done at the student level. Includes only students enrolled at the University of Michigan full time for full first year and who have financial aid data reported. Standard errors are clustered at the school level. Includes zeros for students who receive no aid. “Total grant aid” includes all institutional and departmental scholarships and grants, federal grants, state grants and scholarships, and private scholarships, and other departmental aid. Expected family contribution is capped at the cost of attendance, as determined by the University of Michigan (includes tuition, fees, books and supplies, room and board, transportation, and personal expenses).

Source: [Michigan Department of Education \(2022\)](#), [University of Michigan Office of Enrollment Management \(2022\)](#), [University of Michigan Office of Financial Aid \(2022\)](#).

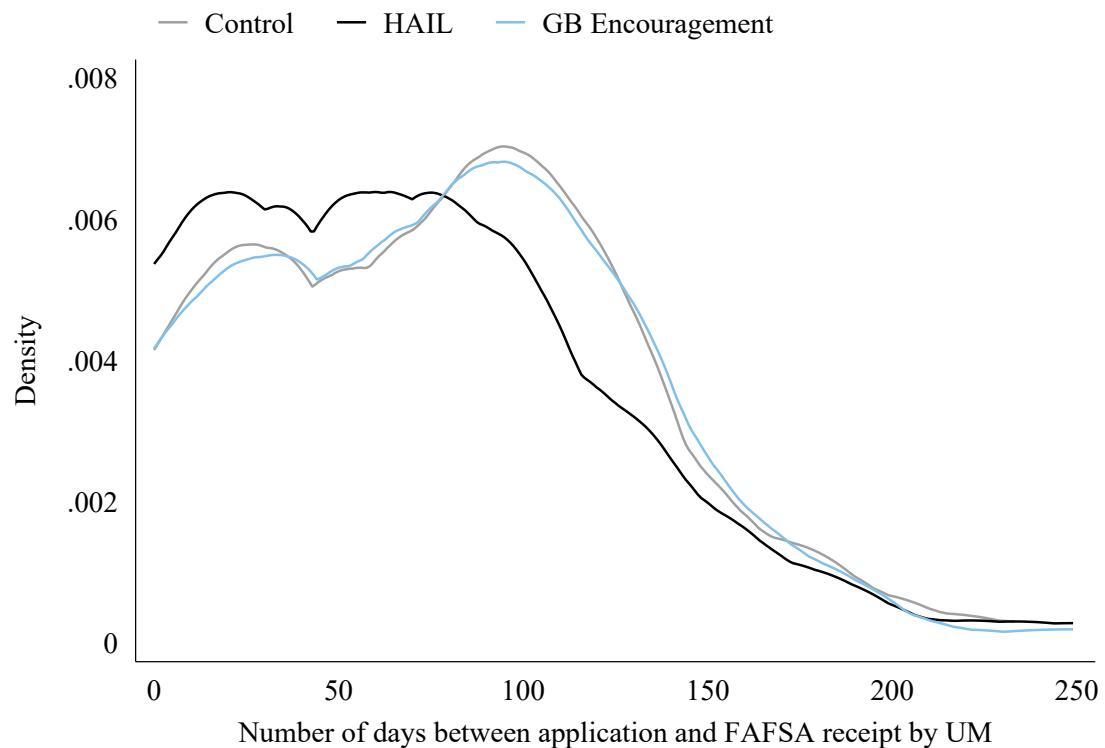
Appendix Figure 1
**Estimated Effect of HAIL Scholarship and Go Blue Encouragement Treatments
on University of Michigan Application, Admission, and Enrollment**



Notes: All analyses done at the school level. Treatment effect coefficients are from estimating Equation 1, a regression of the outcome on indicators for each treatment status (HAIL, Go Blue Encouragement), and strata indicators. The “HAIL” and “Go Blue Encouragement” treatment effects are estimates of β_1 and β_2 , respectively. Robust standard errors reported in parentheses. Ninety-five percent confidence intervals shown based on robust standard errors. Application, admission, and enrollment measured in the summer and fall following expected high school graduation. Admission and enrollment are unconditional on application.

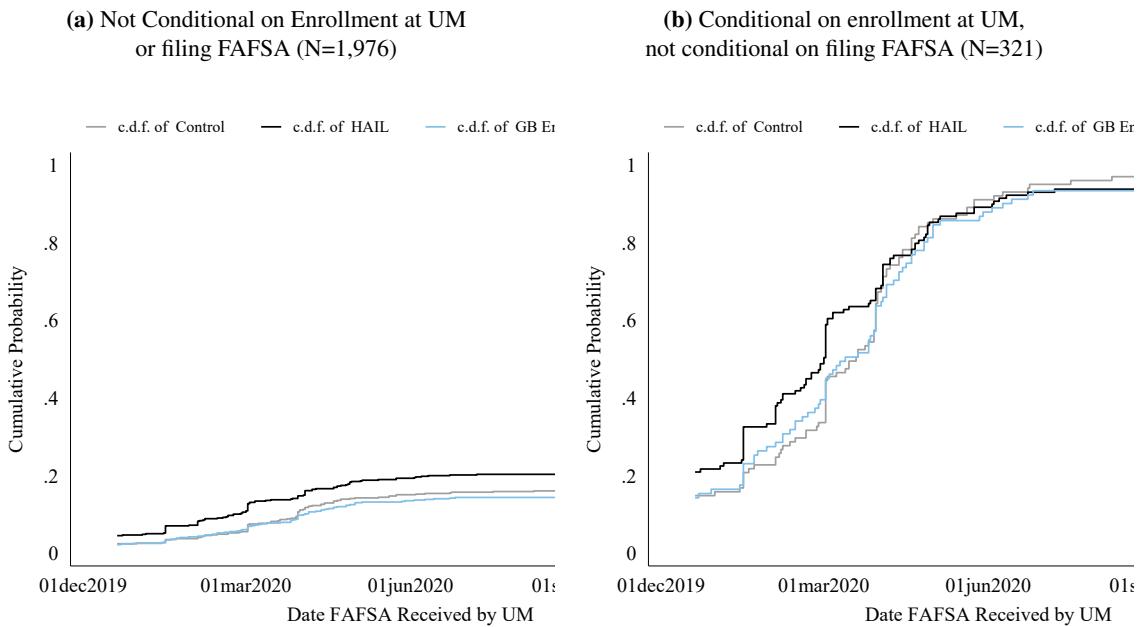
Source: [Michigan Department of Education \(2022\)](#), [University of Michigan Office of Enrollment Management \(2022\)](#).

Appendix Figure 2
Days between Application to UM and UM Receipt of FAFSA Application

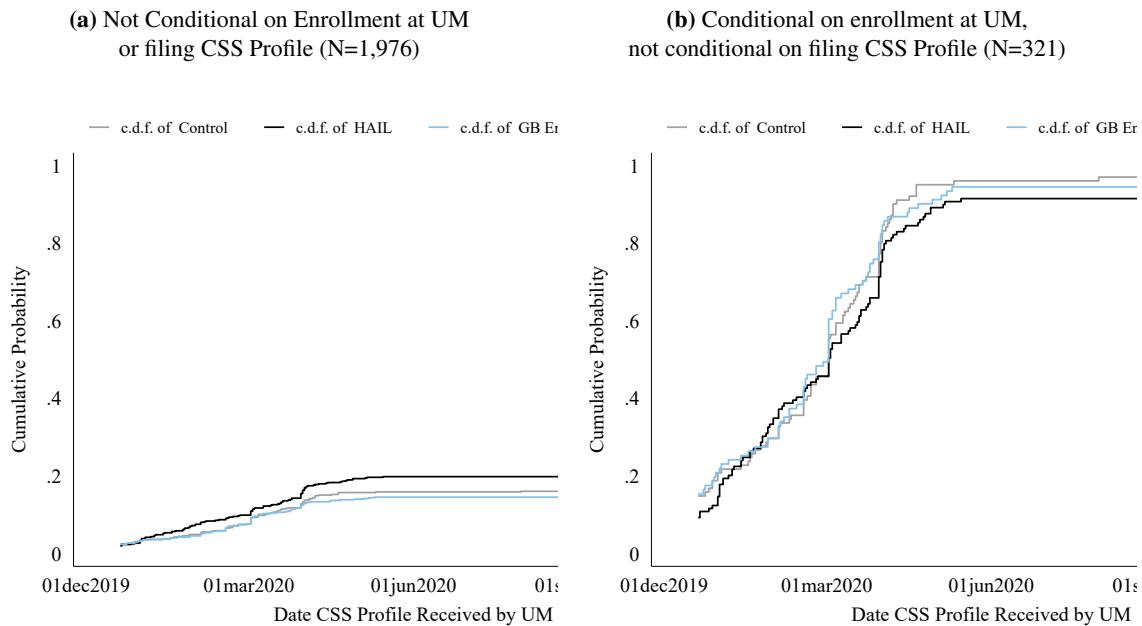


Notes: Figure plots the kernel density of days between application and when the FAFSA was received by the University of Michigan. The first recorded date of receipt by UM is December 20th, the day after early action admissions decisions were released. To calculate the number of days, we set the earliest application date at December 20th then calculated the FAFSA submission date from there, or the actual recorded date for those who apply later. Students who do not enroll at UM or file a FAFSA are excluded from this figure.
 Source: [University of Michigan Office of Enrollment Management \(2022\)](#), [University of Michigan Office of Financial Aid \(2022\)](#).

Appendix Figure 3
Cumulative Distribution of the Dates FAFSA was received by UM



Appendix Figure 4
Cumulative Distribution of the Dates CSS Profile was received by UM



Notes: Figure plots the cumulative distribution of the date the CSS Profile was received by the University of Michigan. The first recorded date of receipt by UM is December 20th, the day after early action admissions decisions were released. Panel 4a includes the full HAIL sample, and therefore students who never have a CSS Profile received by UM. Panel 4b excludes students who do not enroll at UM.

Source: [University of Michigan Office of Enrollment Management \(2022\)](#), [University of Michigan Office of Financial Aid \(2022\)](#).

REFERENCES

- Michigan Department of Education.** 2022. “Student Administrative Data (2011-2020).” *Michigan Education Data Center*.
- University of Michigan Office of Enrollment Management.** 2022. “University of Michigan Application File (2016-2020).” *Michigan Education Data Center*.
- University of Michigan Office of Financial Aid.** 2022. “University of Michigan Financial Aid Data (2016-2020).” *Michigan Education Data Center*.