

HIPs in TN Community Colleges: Investigating Causality Between HIP Participation & Student Success

Alex Gorbunov
Chris Tingle
Gus Gluek

Photo: Jackson State, 2019

tbr | THE COLLEGE SYSTEM
of TENNESSEE

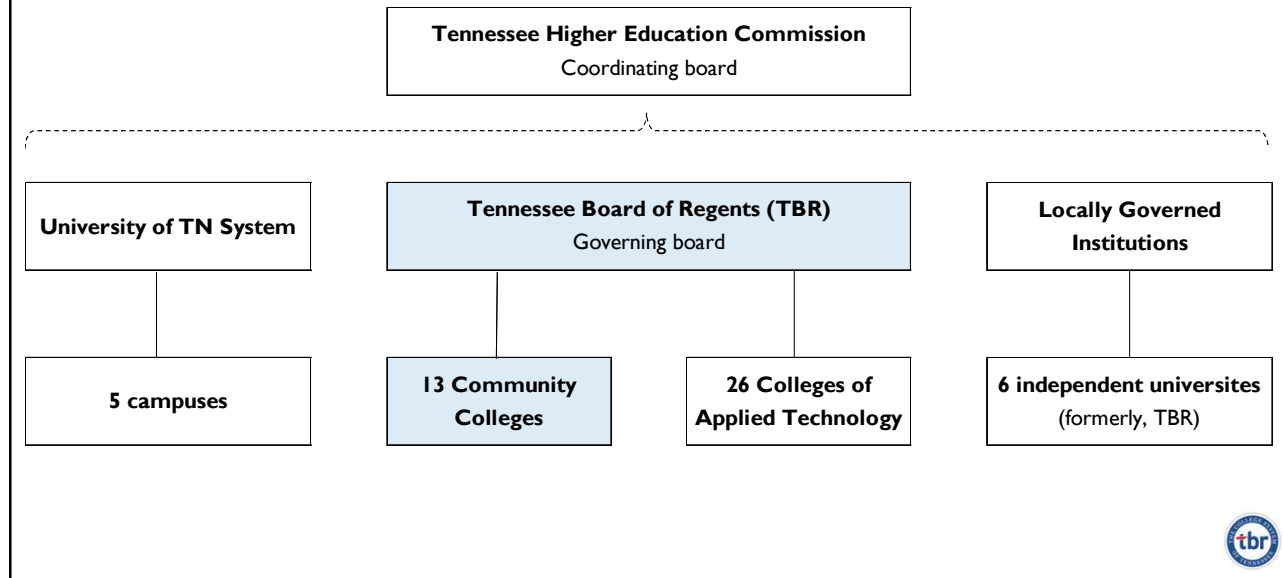
Session outline

1. TBR – *The College System of Tennessee*
2. HIPs in TBR community colleges
3. TBR studies of HIP effects
 - Methodology
 - Findings
4. Policy & practice implications



Photo: Jackson State, 2019

Public higher education in TN



History, development, approaches

How are HIPs implemented by TBR?

High Impact Practice Initiative



Renewed focus on completion strategies in TN

2010: Complete College TN Act

2013: Drive to 55

2015: Revised Strategic Plan for 2015-2025

Completion – *Community, Belonging & Inclusion* initiatives

- Academic Mindset
- Accessibility
- High Impact Practices
- Pedagogy with Purpose

TBR Strategic Plan: [2015-25 TBR Strategic Plan | Tennessee Board of Regents](#)



Steps in developing new HIP

1. HIP **taxonomy** developed by faculty working group. **Minimum definition** established.
 - Some HIPs: Levels established. (e.g.: *Service Learning I* =< 10 hours).
2. HIP selected for **systemwide coding** based on definition & Banner integration feasibility.
3. Colleges notified of intent to add new HIP to coding & data collection process.
Standard Banner codes & process approved by institutions.
4. Colleges begin coding using **local HIP identification & notification** process.
5. TBR data collections updated to collect new HIP codes.
HIP participation data collected along with other administrative data.



TBR coding strategy for HIPs

HIP is embedded in course:

- **Course Attribute:** When all sections of a course meet the minimum definition.
 - All sections of *ACAD 1000* meet minimum definition of first-year experience.
- **Section Attribute:** When only specific sections of a course meet the minimum definition.
 - A faculty member embeds service learning in US History, but other faculty teaching course do not.

HIP is NOT embedded in course:

- **Activity Code:** To identify specific activity student participated in.
 - Student serves as a peer mentor.
- **Activity Type:** Codes activities grouped into types of activities.
 - Peer mentoring is a leadership activity.



HIPs implemented across TBR System

Starting Fall 2016

- Certifications
- Learning Communities
 - Curricular
 - Residential
 - Student type
- **Service Learning**
- Study Abroad
- **Undergraduate Research**
- Work Based Learning

Starting Fall 2017

- First Year Experience or Seminar
- Honors Education
- Technology Enhanced Learning

Starting Fall 2021

- Global Cultural Awareness
- Peer Mentor/Mentee (Activity)
- Student Employment (Activity)



Select study findings:

Service Learning (**SL**)

Undergraduate Research (**UR**)

Is there a causality between HIP & outcomes?

Research questions

Do HIPs affect:

- Likelihood of graduation, transfer & departure?
- Academic performance?
- Time to completion, transfer & departure?

Do effects differ by:

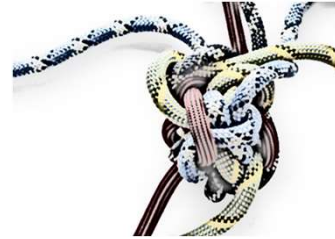
- participation frequency (**UR**)?
- frequency & duration (**SL**)?



Competing causal stories

HIP participants may have:

- better preparation
- different backgrounds
- higher motivation, etc.



Systematic differences may affect participation *and* outcomes

- Better preparation → Better outcomes
- Observed impact = Participation + prior differences



Brief take on methodology

Compare **similar** students:

- Machine learning for propensity scores
- Weighting on inverse probability of participation

Use **appropriate** methods:

- *Binary & frequency analyses*
- Logistic & OLS regressions, EHA

Apply **doubly robust** estimators



Factors accounted for:

Demographic: Age, gender, race/ethnicity, residency, Pell eligibility

Academic:

- ACT score, high school GPA, high school diploma type, learning support, transfer pathways, *TN Promise*, attempted credits, attendance, enrollment delay, major groups

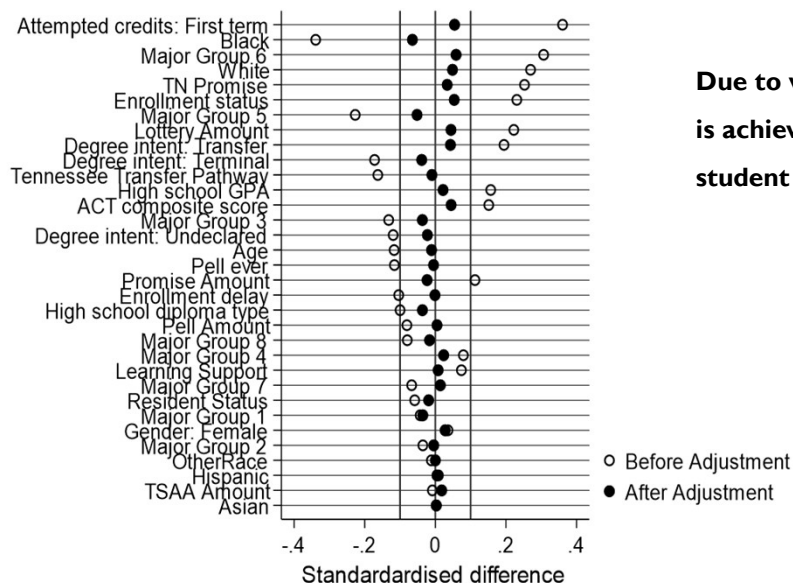
Grant amount: Pell, TN Promise, lottery merit-based, need-based

Institutional effects

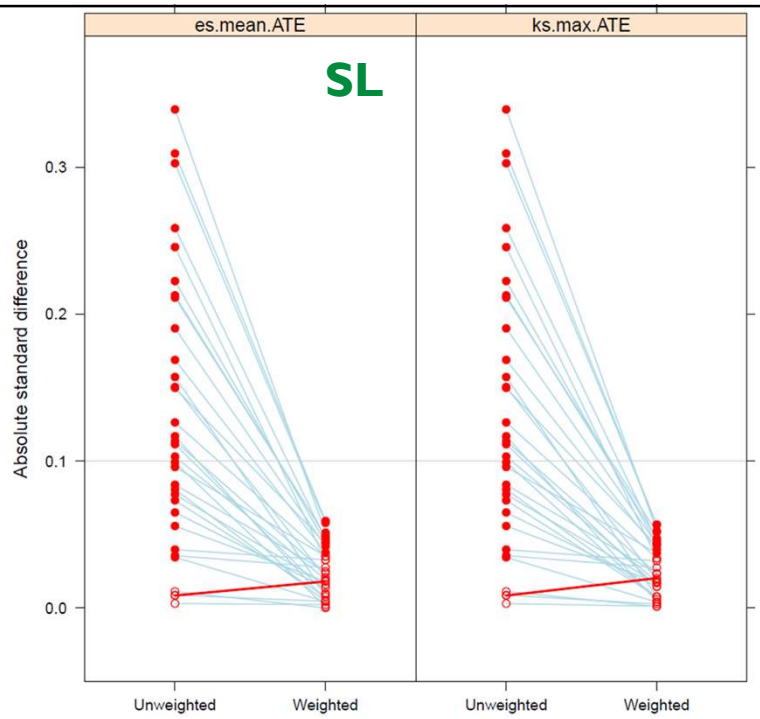


Weighting makes groups similar on key factors

SL



**Standardized differences
b/w treated & untreated
groups are reduced due
to weighting**



HIP participation of 21,578 freshmen over 4 years

	Overall	Once	Twice	3+ times
Undergraduate Research	3,300	1,891	753	656
Any Service Learning	5,057	2,661	1,923	473
SL - 1 (< 10 hours)	1,342	985	262	95
SL - 2 (10–19 hours)	1,886	1,533	353 (2+ times)	
SL - 3 (> 20 hours)	173	-	-	-
Multiple SL	1,656	-	-	-

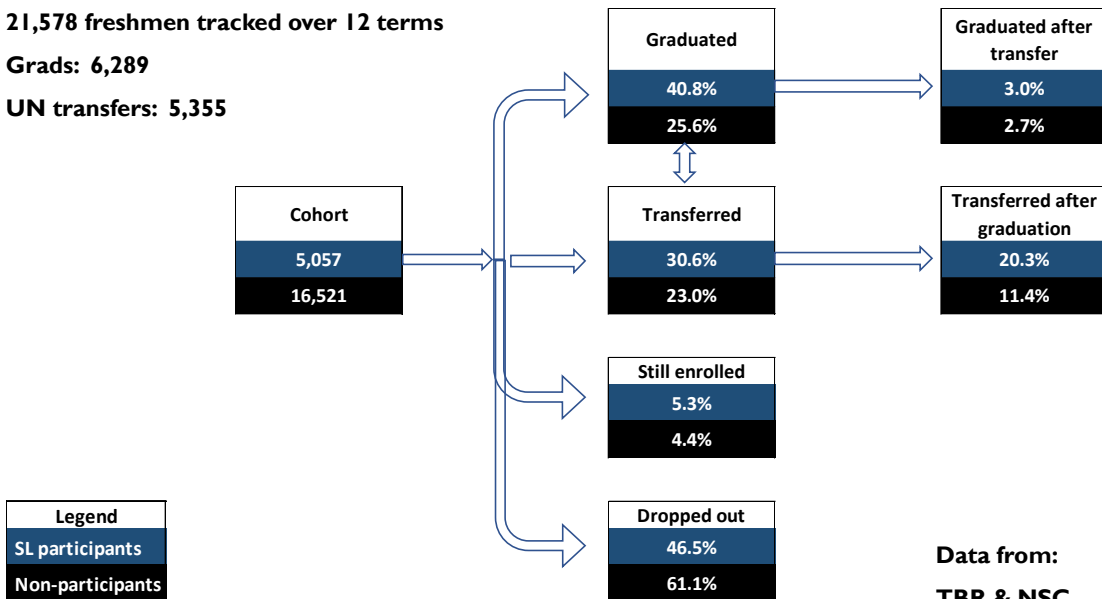


Outcomes: SL participants

21,578 freshmen tracked over 12 terms

Grads: 6,289

UN transfers: 5,355



Interpreting the results

Outcomes for students **similar** in:

- Likelihood of HIP participation
- Control variables



Averaged outcomes at the population level

‘Statistically significant’ = unlikely to be due to chance

Combined outcomes of different models



OUTCOMES:

Cumulative GPA

Probability of graduation

Probability of university transfer

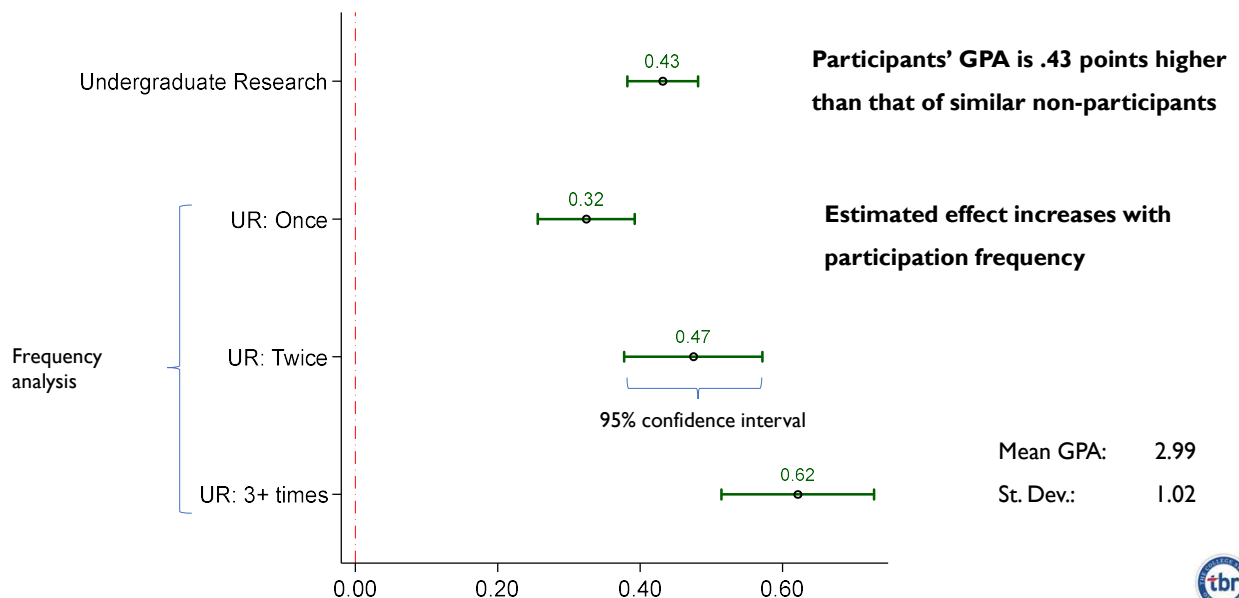
Probability of student departure

Time to graduation

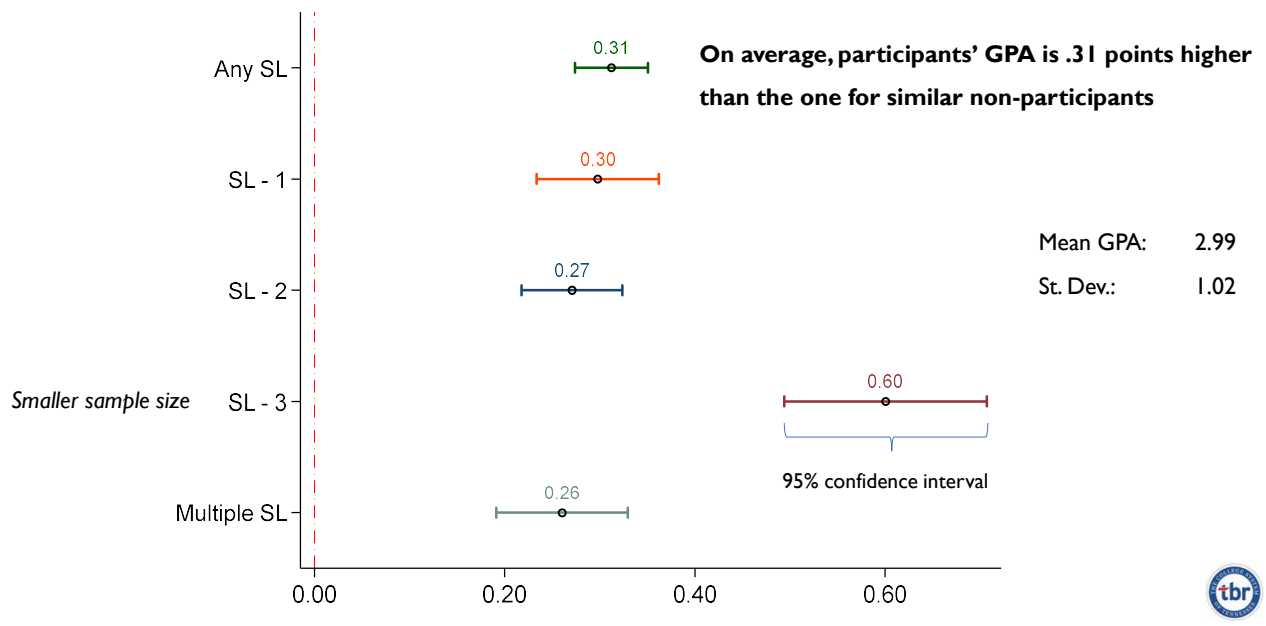
Time to university transfer

Time to student departure

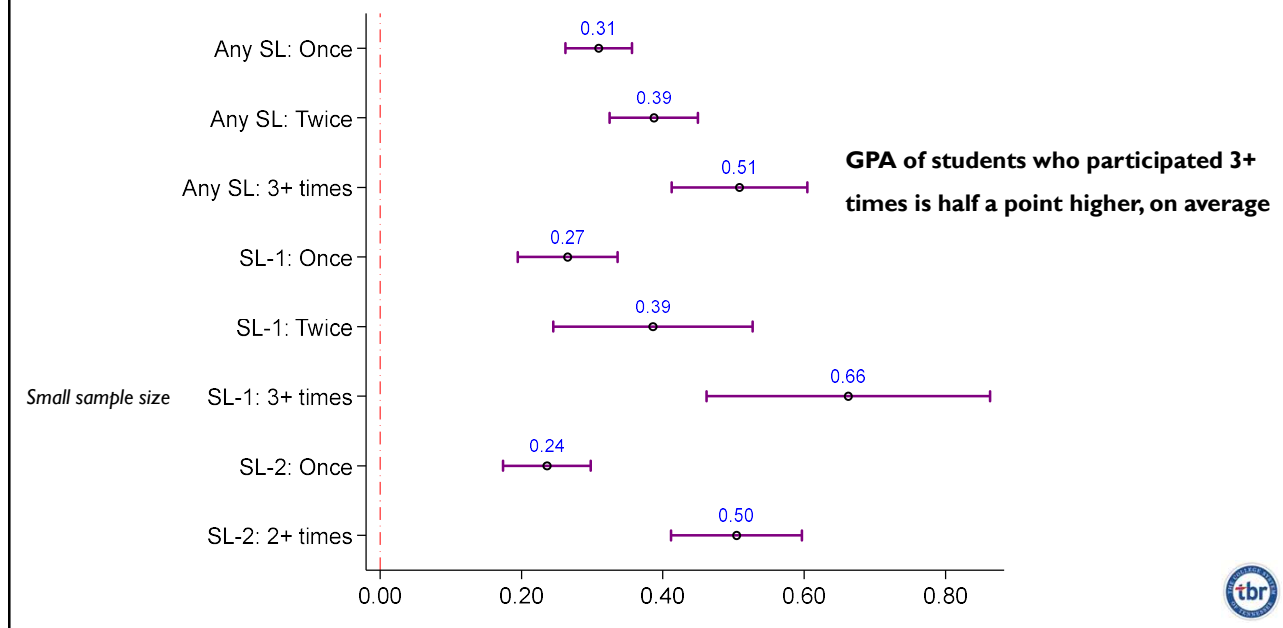
UR participants tend to have higher GPA, on average



Increase in GPA for SL participants



Increase in GPA by SL frequency



OUTCOMES:

Cumulative GPA

Probability of graduation

Probability of university transfer

Probability of student departure

Time to graduation

Time to university transfer

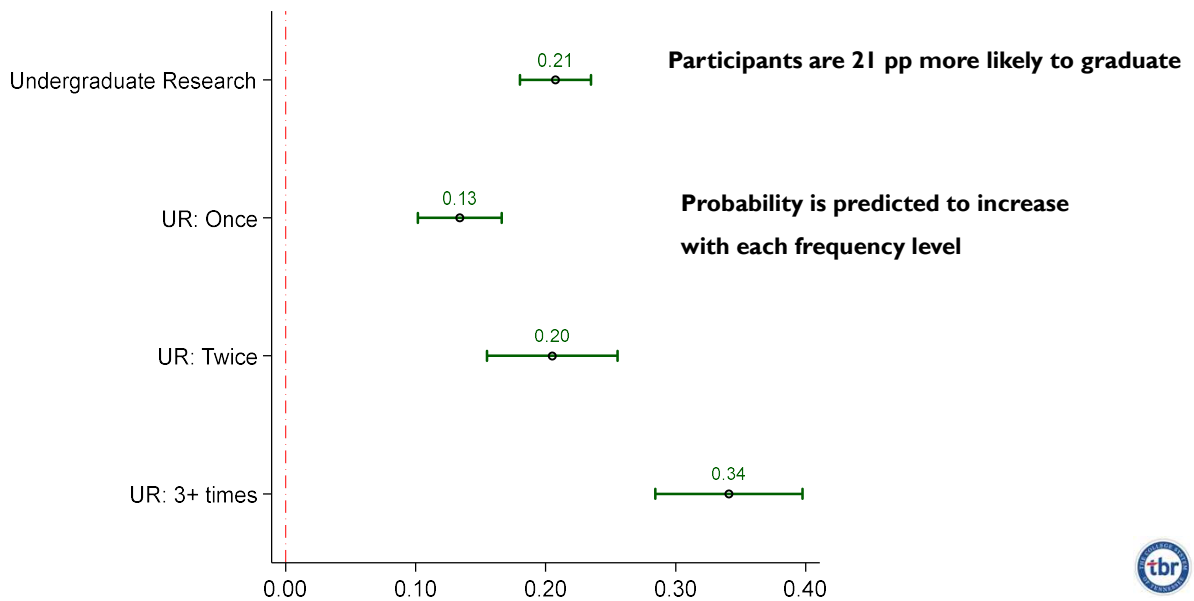
Time to student departure

UR participants: Higher probability of graduation

	Average non-participant	Average UR participant
Undergrad. research	.24	.45
UR – once	.22	.35
UR – twice	.22	.42
UR – 3+ times	.22	.56

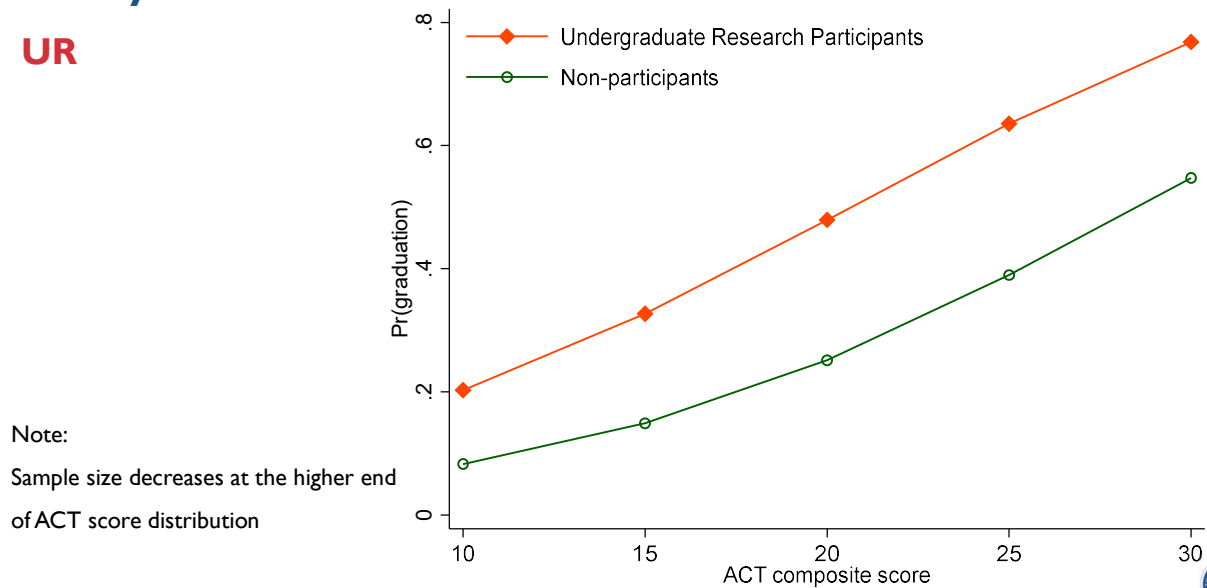


UR participants are more likely to graduate than similar non-participants

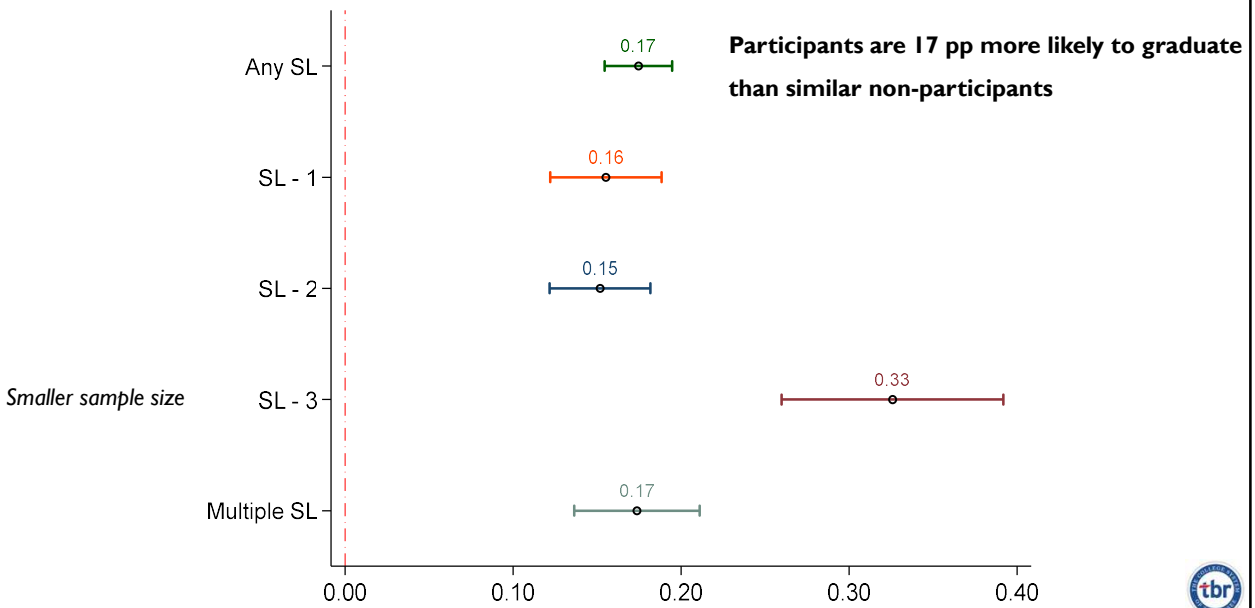


Difference in predicted probability of graduation is observed for any ACT score

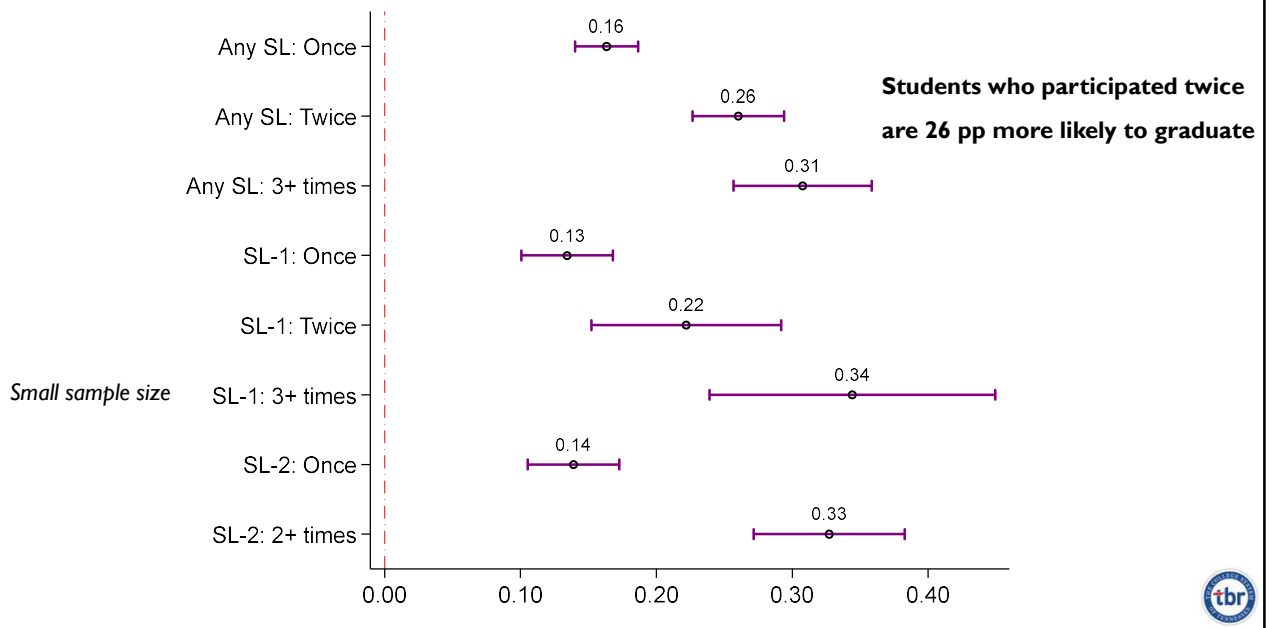
UR



Increase in probability of graduation for SL students



Probability of graduation by frequency: SL students



OUTCOMES:

Cumulative GPA

Probability of graduation

Probability of university transfer

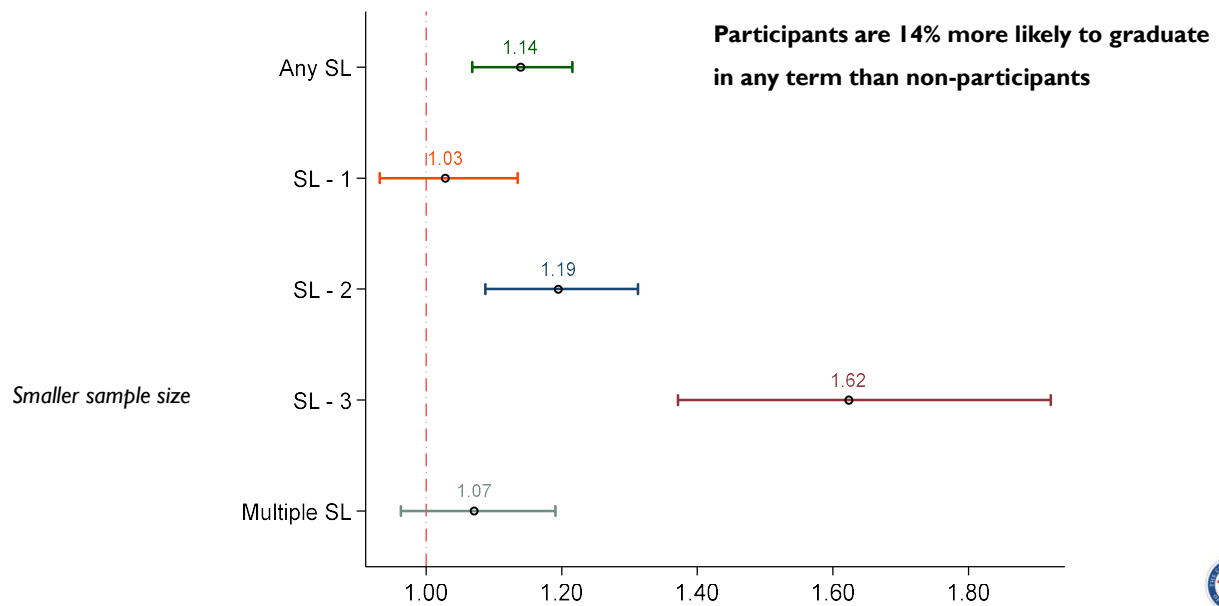
Probability of student departure

Time to graduation

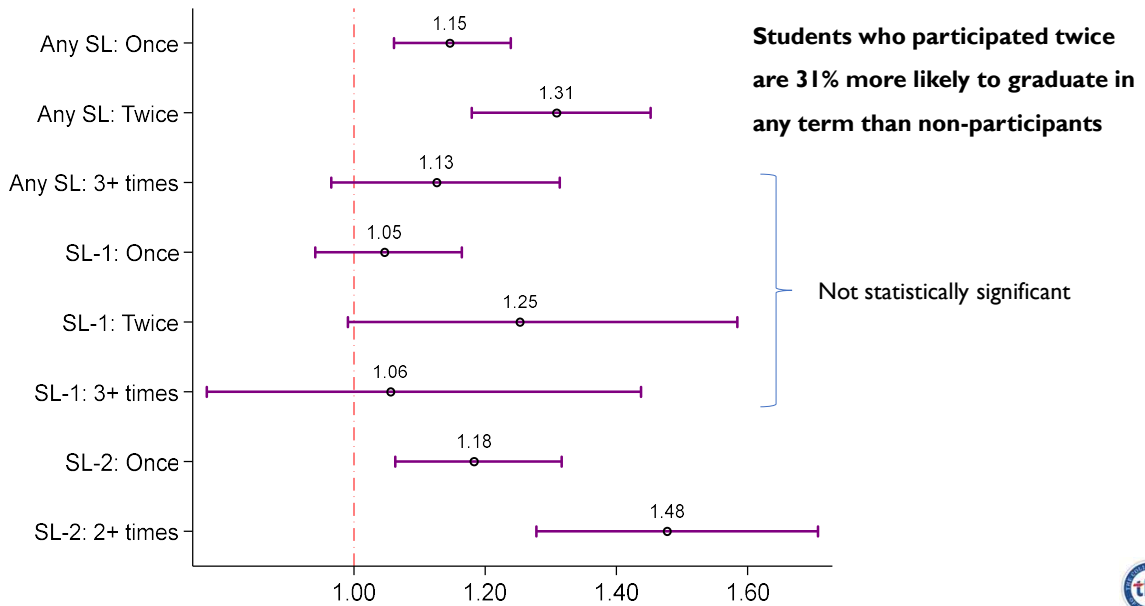
Time to university transfer

Time to student departure

SL participants progress to completion faster

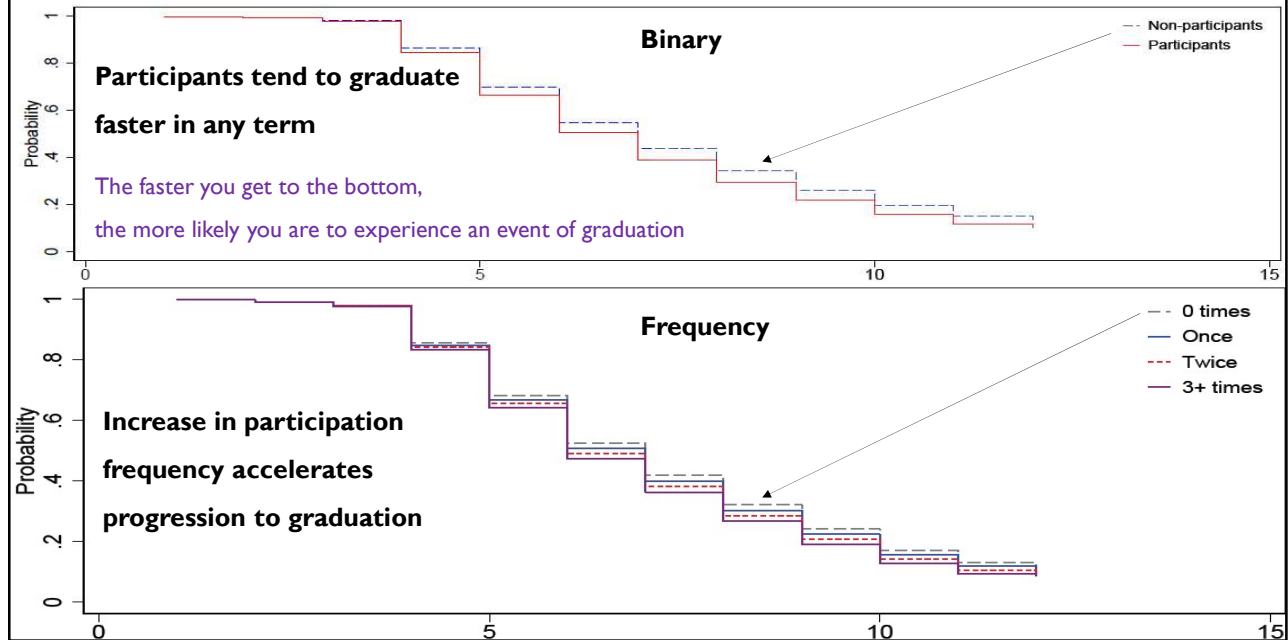


Progression to completion by SL frequency



Progression to completion: *Survivor functions*

SL



OUTCOMES:

Cumulative GPA

Probability of graduation

Probability of university transfer

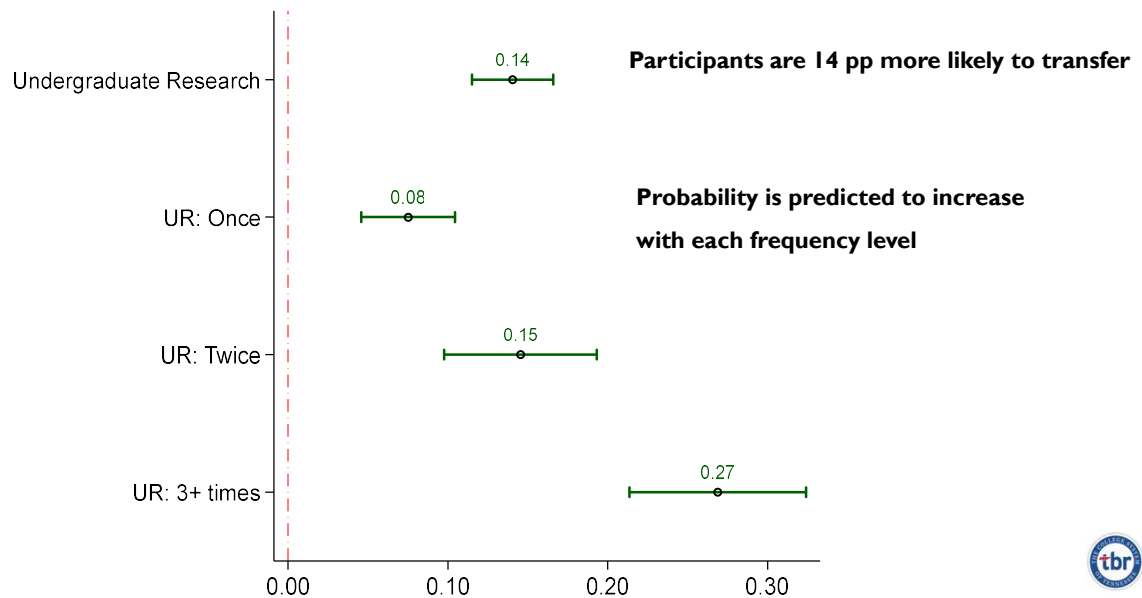
Probability of student departure

Time to graduation

Time to university transfer

Time to student departure

UR participants are more likely to transfer to university than similar non-participants



Increase in probability of transfer for **SL** participants

		Duration & frequency levels with significant results		
Binary	}	Any Service Learning	7 pp.	
		SL - 1 (< 10 hours)	5 pp.	
		SL - 2 (10–19 hours)	11 pp.	
		Multiple SL	4 pp.	SL-3: Not significant
Frequency	}	Any SL - Once	6 pp.	
		Any SL - Twice	9 pp.	
		Any SL - 3+ times	9 pp.	
		SL-1 - Once	5 pp.	SL-1, twice, 3+ times:
		SL-2 - Once	9 pp.	Not significant
		SL-2 - 2+ times	24 pp.	



OUTCOMES:

Cumulative GPA

Probability of graduation

Probability of university transfer

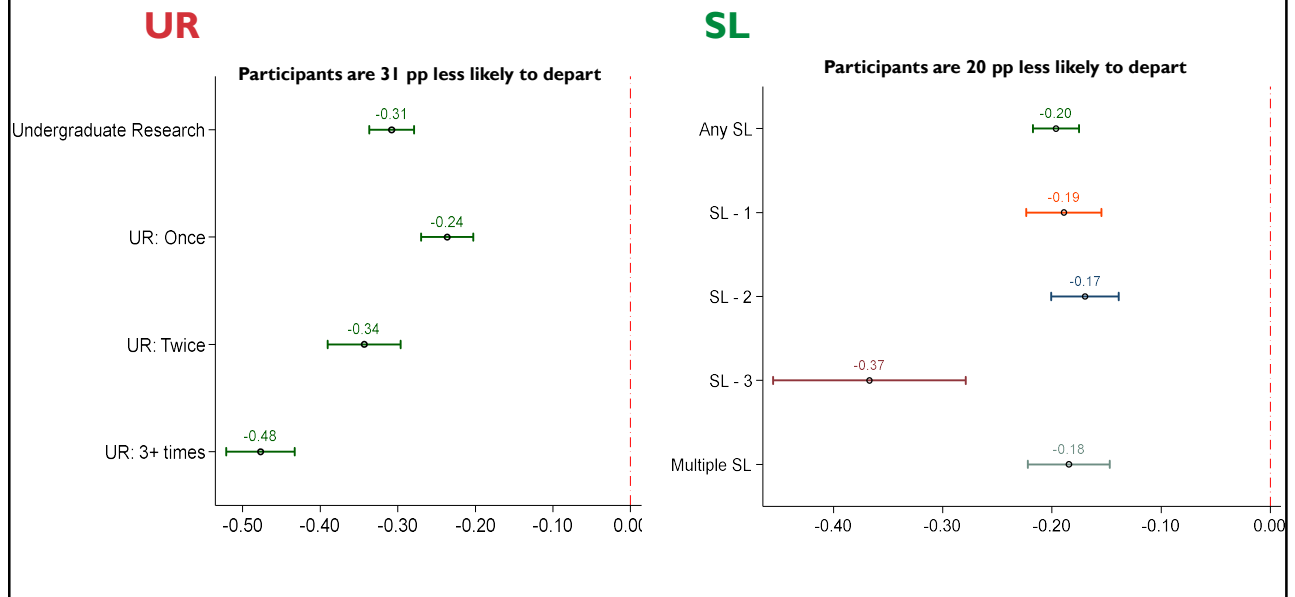
Probability of student departure

Time to graduation

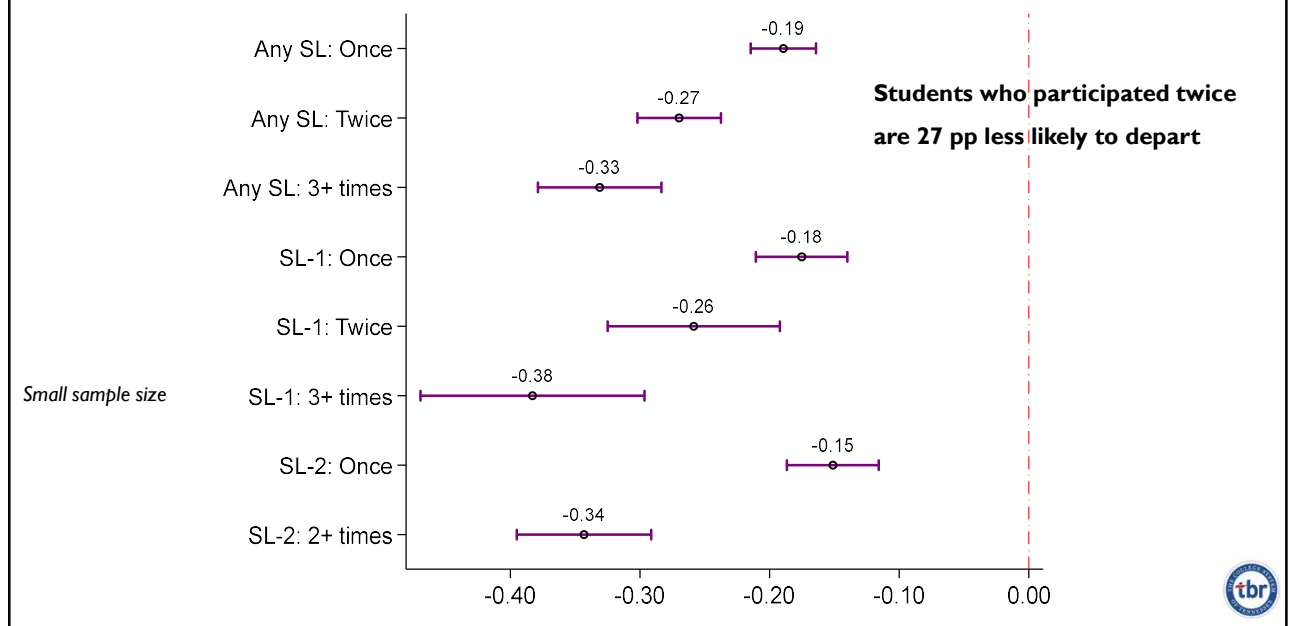
Time to university transfer

Time to student departure

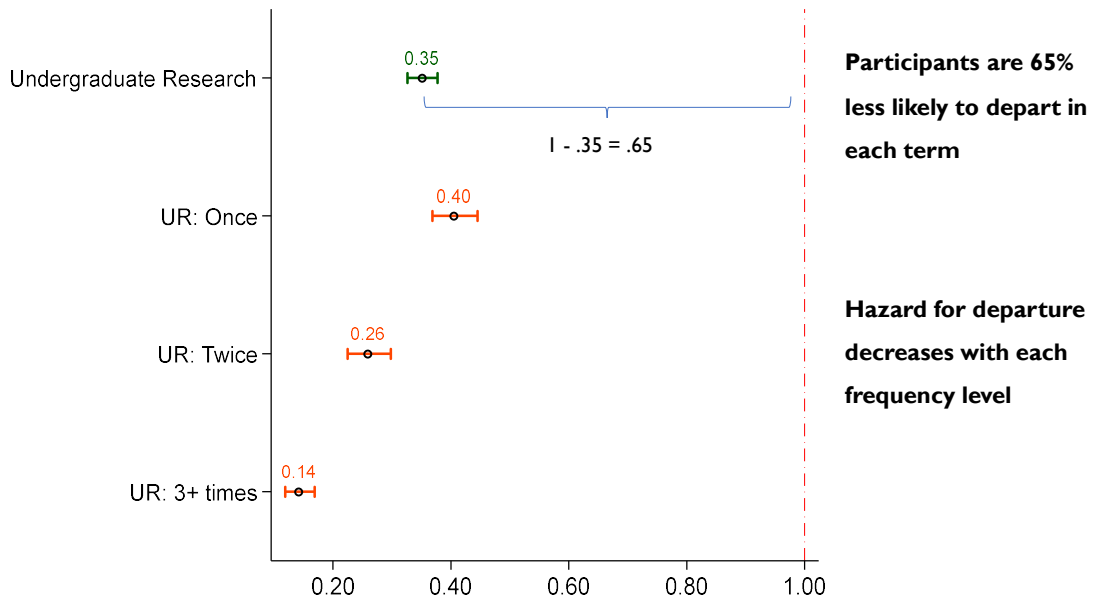
HIP participants show a lower probability of departure



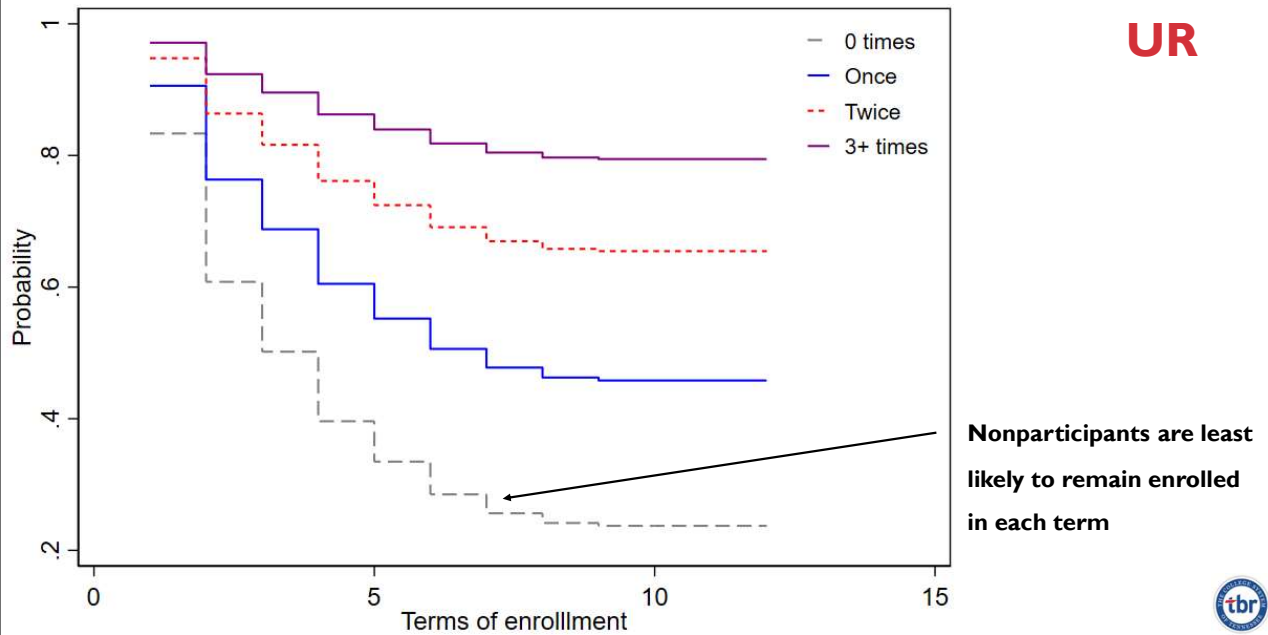
Probability of departure by frequency for SL participants



UR participants are less likely to drop out in any term



Progression to departure slows down with frequency



KEY TAKEAWAYS: SL & UR

HIPs participation →

- Higher GPA
- Higher probability of graduation & transfer
- Faster progression to graduation (SL)
- Better persistence

Results improve with increase in frequency & duration (SL)

Effect sizes are substantial



* 2021 Lumina study (TBR): Positive HIP effect on retention, credit accumulation, gateway course completion



Policy, practice, future research

What are the implications?

What are the next steps?

Policy implications: What TBR has been doing

- Scaling up model for HIPs at the system level
- Mapping HIPs across all academic pathways
- HIP Ambassador Plan
- Support to colleges
- Fidelity of HIP implementation
- Capacity building & faculty development
- Student learner record



Practice implications

Enhance HIP participation opportunities:

- HIP exposure for each student
- Previously underrepresented groups

Implement changes based on sound research:

- Modify HIP duration or frequency
- Create synergy via HIP combination
- Intentionally involve groups most likely to benefit



Next steps in research & assessment

Conduct equity-focused analyses

Disaggregate the effects (colleges, courses, timing, student groups)

Include new foci:

- Other HIPs
- Interactive & differential effects of multiple HIPs
- Long-term HIP effects (employment, earnings)
- Enrich modeling results with qualitative approaches

Examine students' learning gains



RESOURCES

Photo: Pellissippi State,
Commencement 2022

Presentation:

assessmentinstitute.iupui.edu

Reports:

tbr.edu/policy-strategy/presentations-and-papers

ERIC