Research Questions

1. Do HIPs have an effect on Student Retention?
2. Are the effects conditional based upon:
   - Student factors
   - Other HIPs
3. Which HIPs exert greatest effects?
Background / Context

• Northern Illinois University
  – 21,000 Undergraduate / Graduate students
  – 7 Colleges, 39 Academic Departments
  – Research High
  – Proximity to Chicago, diverse student body

• HIPs at NIU
  – Office Student Engagement & Experiential Learning
  – UG Research, Service Learning, TLCs
Example HIPs at NIU

- Research Rookies – freshman paired with faculty, competitive, student stipend
- USOAR – funded research open to all students
- UG Research Assistantships
- Themed Learning Communities
- Huskie Service Scholars
Current Project

• Assess whether High Impact Practices (HIPs) affect when students drop out of NIU
  – Participants N=28,997
  – Undergrads from Fall 2009 to Fall 2014 (excluding summer terms)
  – Transfers to NIU n=13,430
  – Number of students who participated in HIPS n=1817
Survival Analyses

• Ideal to Predict Event Occurrence
  – Graduation
  – Retention / Leaving

• Types of Predictors
  – Individual differences
  – Initial factors / interventions
  – Time dependent covariates

• Uses Censored Data
Arranging Data for Analyses

• Term level analysis predicting attrition
  – First semester at NIU is time 1
  – There is a row for every semester
  – N=111,417 students X enrolled terms.
  – Total HIP participation n=2569 (students can participate in more than one HIP)
  – Graduating students are censored
Hazard Function – Probability of Leaving

Probability of dropping out between one’s second and third term. (15%)

Expected graduation in 4 years (8 terms)
Survivor Function – Proportion Retained

Proportion of students returning for a 3rd term (74%)

Half the students have dropped out
Transfer Students v. Native NIU

Hazard Function

[Graph showing hazard function for Transfer and Native students across different intervals (1,2), (2,3), (3,4), (4,5), (5,6), (6,7), (7,8), (8,9), (9,10), and (10,11)].

Legend:
- Blue dots: Transfer
- Red dots: Native
Analysis Strategy

• Analyses control for:
  – Transfer student status
  – Term GPA
  – Hours taken in a term
  – Hours earned in a term
  – Fall/Spring Term
Hazard Function with Controls

Hazard Function

No HIP
The effect of HIP on Attrition (1 HIP)

Hazard Function

- [1,2) 8%
- [2,3) 6%
- [3,4) 4%
- [4,5) 4%
- [5,6) 2%
- [6,7) 2%
- [7,8) 1%
- [8,9) 2%
- [9,10) 4%
- [10,11) 3%

1 HIP vs No HIP
The effect of HIP on Attrition (2 HIPs)

Hazard Function

- 2 HIP
- No HIP

[1,2) 2% 8%
[2,3) 4% 7%
[3,4) 5% 6%
[4,5) 4% 4%
[5,6) 4% 4%
[6,7) 3% 3%
[7,8) 2% 2%
[8,9) 2% 2%
[9,10) 1% 1%
[10,11) 3% 3%
The effect of HIP on Attrition (3 HIPs)

Hazard Function

- [1,2): 8%
- [2,3): 6%
- [3,4): 5%
- [4,5): 4%
- [5,6): 4%
- [6,7): 4%
- [7,8): 3%
- [8,9): 2%
- [9,10): 2%
- [10,11): 2%

3 HIP vs No HIP
The effect of HIP on Attrition (4 HIPs)

Hazard Function

<table>
<thead>
<tr>
<th>Interval</th>
<th>4 HIP</th>
<th>No HIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1,2)</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>[2,3)</td>
<td>6%</td>
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<tr>
<td>[10,11)</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>
The effect of HIP on Attrition (5 HIPs)

Hazard Function

- [1,2): 8%
- [2,3): 6%
- [3,4): 4%
- [4,5): 4%
- [5,6): 2%
- [6,7): 2%
- [7,8): 0%
- [8,9): 0%
- [9,10): 4%
- [10,11): 3%

- 5 HIP
- No HIP
The effect of HIP on Attrition (1-6 HIPS)
Research Rookies and Attrition

Hazard Function

- Research Rookies
- No HIP
Conclusions

Causation is tricky here. That said, the analyses show:

- Those who participate in HIPs are less likely to drop out
- The relationship between HIPs and retention remains even after controlling for other retention predictors
- The relationship between HIPs and Retention is additive
- Effects of HIPs are not conditional on minority status