‘Calculating’ Return: Using Student Input Data to Calculate First-Year Retention

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Introduction

- Increasing degree attainment rates is a national priority
- Living communities, first year seminars, and supplemental instruction are among institutional efforts that have received a lot of attention as best practices
Despite concerted efforts, attrition remains highest during first-year of college.
To best tailor campus-facilitated efforts, it is necessary to better understand inputs of incoming class

- Who are we serving and what are their chances of being retained?
- Would increasing certain efforts help the type of students we serve?
Purpose

- To examine how pre-college student and institutional characteristics are related to first-year retention
- To provide institutions with a first-year retention calculator
Background: HERI’s Graduation Calculator

- Created in 2011
- Allows institutions to compare expected rates to actual rates
- Basic calculator uses race, sex, high school GPA, and SAT scores
- Larger calculator uses 169 variables
  - Improved correct classification of cases by about 5%
Methods

- **Data and Sample**
  - 2004 CIRP Freshman Survey
  - 2005 National Student Clearinghouse
  - 210,056 students at 356 four-year colleges and universities
    - Weighted by institution type and sex to represent the 1.4 million first-time, full-time students entering 4-year institutions in 2004

- **Analysis**
  - HG LM
Variables

- **Dependent variable (NSC)**
  - Re-enrollment at same institution in Fall 2005

- **Independent variables (TFS)**
  - Demographic
  - Pre-college experiences and academic achievement
  - Financial considerations and college choice
  - Expectations and intended major
  - Institutional characteristics
Results: Demographics

**Increased Odds**
- Asian American
- Black
- Higher Income

**Decreased Odds**
- American Indian
- Multiracial
- Native English Speaker
- First Generation
First-Year Retention Rates, by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>% of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>67.4</td>
</tr>
<tr>
<td>Asian</td>
<td>90.1</td>
</tr>
<tr>
<td>Black</td>
<td>76.5</td>
</tr>
<tr>
<td>Latina/o</td>
<td>78.3</td>
</tr>
<tr>
<td>White</td>
<td>82.0</td>
</tr>
<tr>
<td>Multiracial</td>
<td>79.7</td>
</tr>
</tbody>
</table>
First-Year Retention Rates, by Income

<table>
<thead>
<tr>
<th>Income Range</th>
<th>% of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10k</td>
<td>72.9</td>
</tr>
<tr>
<td>$10k to $40k</td>
<td>77.4</td>
</tr>
<tr>
<td>$40k to $49,999</td>
<td>79.2</td>
</tr>
<tr>
<td>$50k or more</td>
<td>85.3</td>
</tr>
<tr>
<td>$75k or more</td>
<td>86.4</td>
</tr>
</tbody>
</table>
Results: Pre-College Experiences and Academic Achievement

**INCREASED ODDS**
- Felt Overwhelmed
- Volunteer work
- Hrs/wk: Student Clubs
- Hrs/wk: Homework
- SAT Score
- Emotional Health

**DECREASED ODDS**
- Felt Depressed
- Social Self-Concept
Retention Rates, by Emotional Health

- Lowest 10%: 72.2%
- Below Average: 76.8%
- Average: 80.7%
- Above Average: 83.4%
- Highest 10%: 83.4%
### Results: Financial Considerations and College Choice

**Increased Odds**
- Aid: Family Resources
- Aid: Grants/Scholarships
- First Choice College
- Reason for Choosing: Cost
- College Reputation
- Reason for College: To Gain a General Education

**Decreased Odds**
- Aid: Loans
- Aid: My Own Resources
- Financial Concerns: Major
Retention Rates, by Financial Concerns

% of Students

Major: 74.7
Some: 82.3
None: 83.4
Results: Expectations and Intended Major

**Increased Odds**
- Expectation: Change Major
- Likelihood of College Involvement
- Major: Education

**Decreased Odds**
- Expectation: Transfer
- Major: STEM
Retention Rates, by Likelihood of Involvement

% of Students

- Low Group: 72.2%
- Medium Group: 76.8%
- High Group: 87.5%