A Statistical Analysis of The University of Oregon’s Retention Rates for Minority Groups

Zoe Grover & Joe Croson
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Economics 419
Retention for Minority Groups

Motivation

• Diversity is important to universities, including the UO
  – Open access to all at public universities is important
  – Diversity of experiences can enhance learning
• One focus for diversity initiatives has been under-represented racial groups
• Two critical areas where representation by these groups are affected include admissions and retention
• Differences in factors affecting minority-group retention has rarely been studied
Retention for Minority Groups

- Previous Literature
- Descriptive Statistics
  - Hypotheses
  - Methodology
    - Results
    - Conclusion
Previous Literature

• Loo and Rolison (1986)
• Hurtado et al. (1998)
• Nora (1990)
• Singell (2002, 2006)
  – Differences in effects of merit based aid and need based aid.
Our Paper

• We will be extending Singell’s study to examine the differences in how various factors affect retention across minority groups at the UO.

• We will separate Singell’s model by race to see how retention varies.

• We will also consider other factors affecting retention not studied by Singell.
Hypotheses

• Factors
  – Financial
  – Academic
  – Social/Adaptation
Hypotheses

• Factors
  – Financial
    • Family Income
    • Work Study Hours
    • Financial Aid Eligibility
    • Scholarships
  – Academic
  – Social/Adaptation
Hypotheses

• Factors
  – Financial
  – Academic
    • High School GPA
    • UO GPA
    • SAT Scores
  – Social/Adaptation
Hypotheses

• Factors
  – Financial
  – Academic
  – Social/Adaptation
    • Demographics of student’s community of origin
      – Percent of Community with Bachelors Degree
      – School Type
      – School Size
# Descriptive Statistics

## Hometown

<table>
<thead>
<tr>
<th>Percent of Hometown With Bachelor’s Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
</tr>
<tr>
<td>African American</td>
</tr>
<tr>
<td>Hispanic</td>
</tr>
<tr>
<td>Native American</td>
</tr>
<tr>
<td>White</td>
</tr>
</tbody>
</table>
## Descriptive Statistics

### Hometown Income Levels

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Median Household Income</th>
<th>Average Family Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>$35,461</td>
<td>$57,794</td>
</tr>
<tr>
<td>African American</td>
<td>$31,410</td>
<td>$50,583</td>
</tr>
<tr>
<td>Hispanic</td>
<td>$32,152</td>
<td>$56,252</td>
</tr>
<tr>
<td>Native American</td>
<td>$31,473</td>
<td>$53,777</td>
</tr>
<tr>
<td>White</td>
<td>$34,509</td>
<td>$59,172</td>
</tr>
</tbody>
</table>
Average Yearly Financial Aid Over a Four Year Period

![Bar chart showing average yearly financial aid by category and ethnicity. The categories are Grants, Subsidized, Unsubsidized, Scholarships, and Workstudy. Ethnicities include Asian, African American, Hispanic, Native American, and White.](chart.png)
## Descriptive Statistics

### Grade Point Average

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>2.84</td>
<td>2.88</td>
<td>2.95</td>
<td>2.95</td>
</tr>
<tr>
<td>African American</td>
<td>2.4</td>
<td>2.51</td>
<td>2.49</td>
<td>2.74</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.71</td>
<td>2.75</td>
<td>2.97</td>
<td>2.9</td>
</tr>
<tr>
<td>Native American</td>
<td>2.75</td>
<td>2.8</td>
<td>2.79</td>
<td>2.88</td>
</tr>
<tr>
<td>White, Caucasian</td>
<td>2.92</td>
<td>2.93</td>
<td>3.02</td>
<td>3.11</td>
</tr>
</tbody>
</table>
Methodology

• We will be using a statistical model that estimates the contribution of a specific factor or characteristic in retaining a student at the UO, holding all other factors constant.
  – For example, if an African-American student were given $1000 more in scholarship monies, how much more likely would they be retained at UO?
  – How does this differ from giving a Hispanic (or White) student an extra $1000?
Methodology

• Data Source
  – UO Admissions Data with generous help from Prof. Singell

• Statistical Model
  
  Retention = C + B₁ Gender + B₂ Resident + B₃ Contact Age + B₄ HSTYPE + B₅ CityType + B₆ Net High School GPA + B₇ Net Cumulative SAT + B₈ First Year GPA + B₉ Average Family Income + B₁₀ FAFSA Completion + B₁₁ Aid Eligibility + B₁₂ Financial Aid + B₁₃ Scholarships + Random Error Term
Results

• Retention To Sophomore Year
  • Academic Effects
  • Family Background Effects
  • Gender
  • Hometown Community Characteristics
  • Financial Aid, Scholarship, Grant Effects
Results

- Retention To Sophomore Year
  - Academic Effects

<table>
<thead>
<tr>
<th>Race</th>
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</tr>
</thead>
<tbody>
<tr>
<td>UO GPA (change from 3.0 to 4.0)</td>
<td>11.89%**</td>
<td>5.02%**</td>
<td>9.44%**</td>
<td>11.44%**</td>
<td>9.69%**</td>
</tr>
</tbody>
</table>

- Family Background Effects
- Gender
- Hometown Community Characteristics
- Financial Aid, Scholarship, Grant Effects
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• Retention to Sophomore Year
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<tbody>
<tr>
<td>Median Household Income (change from $40,000 to $80,000)</td>
<td>0.40%</td>
<td>- 2.00%</td>
<td>18.40%**</td>
<td>- 8.00%</td>
<td>4.80%**</td>
</tr>
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• Gender
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<tbody>
<tr>
<td>Average Family Income</td>
<td>1.20%</td>
<td>44.00%**</td>
<td>8.00%</td>
<td>11.60%</td>
<td>4.80%**</td>
</tr>
<tr>
<td>(change from $40,000 to $80,000)</td>
<td></td>
<td></td>
<td></td>
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- Gender
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<tr>
<td>Gender- If Female</td>
<td>4.54%**</td>
<td>-1.74%</td>
<td>-8.36%**</td>
<td>-4.76%</td>
<td>-3.37%**</td>
</tr>
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- Hometown Community Characteristics
- Financial Aid, Scholarship, Grant Effects
Results

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<tbody>
<tr>
<td>Percent of Hometown w/ Bachelor’s Degree (change of 1 percentage point)</td>
<td>0.29%**</td>
<td>0.48%</td>
<td>0.77%**</td>
<td>0.39%</td>
<td>0.17%**</td>
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<tbody>
<tr>
<td>Percent of Hometown That is White (change of 1 percentage point)</td>
<td>0.09%</td>
<td>-0.06%</td>
<td>0.37%**</td>
<td>-0.06%</td>
<td>-0.17%**</td>
</tr>
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<tr>
<td>Positive Financial Aid Eligibility (change of $1000)</td>
<td>0.96%**</td>
<td>2.29%**</td>
<td>0.57%</td>
<td>-3.24%**</td>
<td>-0.06%</td>
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<tbody>
<tr>
<td>Unsubsidized Loan (change of $1000)</td>
<td>-1.75%**</td>
<td>-2.08%**</td>
<td>-1.21%*</td>
<td>-0.23%</td>
<td>-1.06%**</td>
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<tr>
<td>Subsidized Loans (change of $1000)</td>
<td>2.74%*</td>
<td>0.87%</td>
<td>0.21%</td>
<td>5.76%</td>
<td>1.43%**</td>
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<tbody>
<tr>
<td>Diversity Scholarships</td>
<td>2.98%**</td>
<td>4.96%**</td>
<td>2.23%</td>
<td>3.04%</td>
<td>---</td>
</tr>
<tr>
<td>(change of $1000)</td>
<td></td>
<td></td>
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<tbody>
<tr>
<td>Deans Scholarships (change of $1000)</td>
<td>-0.74%</td>
<td>6.52%</td>
<td>4.18%</td>
<td>16.31%*</td>
<td>0.29%</td>
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<tbody>
<tr>
<td>Other Scholarships (change of $1000)</td>
<td>6.12%**</td>
<td>4.00%</td>
<td>0.15%</td>
<td>9.12%</td>
<td>2.64%**</td>
</tr>
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Results

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<th>Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants (change of $1000)</td>
<td>-5.84%**</td>
<td>-4.68%*</td>
<td>-0.64%</td>
<td>0.67%</td>
<td>0.97%**</td>
</tr>
</tbody>
</table>
Conclusion

• General Results
  – Asian students respond to both financial aid and scholarship dollars
  – Hispanic students respond more heavily to hometown community attributes
  – African American students respond to financial factors, specifically diversity scholarship dollars, GPA seems less important
  – White students respond to a full spectrum of factors, but in most cases to a lesser degree

• Missing Variables/ Future Research
Conclusion

• General Results
• Missing Variables/Future Research
  – Athletes
  – Clubs, Organizations
  – On Campus Living
  – Faculty and Leadership Demographics