Toward a better understanding of community college enrollment patterns

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What I want you to take away

• There is an impressive number of enrollment intensity patterns among community college students.

• Features of enrollment patterns are correlated with completion and transfer outcomes.
Motivation

• Definitions: Intensity=FT/PT, FT=12 credit hours attempted

• Well-documented that community college student pathways are diverse

• Recent attention to how pathways are related to outcomes

• No work thus far documenting the heterogeneity of and reasons for intensity changes
Research questions

• What do enrollment patterns look like, and how can we visualize them?

• How are patterns related to outcomes?

• How are the patterns themselves generated? What determines switching behavior?
Data

• 5 colleges in a single state system
• Two entering cohorts (2005-06, 2006-07)
• Six academic years
  – 2005-06 to 2010-11
  – 18 enrollment terms (15 for later cohort)
• 68,310 FTIC students observed
• 14,429 “credit” students – intend to earn credential or transfer
  – The rest are non-credit vocational, ESL, ABE
Framework

• Over all semesters, code 1 as FT, 0 as PT and . as not enrolled.

• (A)typical pattern:

11011.11.11.0.1...
<table>
<thead>
<tr>
<th>Pattern</th>
<th>Frequency</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.................</td>
<td>2884</td>
<td>20%</td>
</tr>
<tr>
<td>1.................</td>
<td>1058</td>
<td>27%</td>
</tr>
<tr>
<td>00................</td>
<td>780</td>
<td>33%</td>
</tr>
<tr>
<td>11................</td>
<td>527</td>
<td>36%</td>
</tr>
<tr>
<td>10................</td>
<td>278</td>
<td>38%</td>
</tr>
<tr>
<td>11.11.............</td>
<td>175</td>
<td>40%</td>
</tr>
<tr>
<td>01................</td>
<td>137</td>
<td>40%</td>
</tr>
<tr>
<td>0.0................</td>
<td>136</td>
<td>41%</td>
</tr>
<tr>
<td>11.1..............</td>
<td>124</td>
<td>42%</td>
</tr>
<tr>
<td>0..0...............</td>
<td>118</td>
<td>43%</td>
</tr>
<tr>
<td>11110001.0..00....</td>
<td>1</td>
<td>99%</td>
</tr>
<tr>
<td>11110010011.......</td>
<td>1</td>
<td>99%</td>
</tr>
<tr>
<td>111101............</td>
<td>1</td>
<td>99%</td>
</tr>
<tr>
<td>1111010...........</td>
<td>1</td>
<td>99%</td>
</tr>
<tr>
<td>11111............110...</td>
<td>1</td>
<td>99%</td>
</tr>
</tbody>
</table>


Few students progress in a similar way

• How do institutions acknowledge this?
  – Still present 4-semester suggested course sequences
  – 11% of students still enrolling after 13 terms (4+ years)

• 27% show up once. What happens to them?
  – Many who do not graduate or transfer have poor 1st term academic performance

• Is the diversity of patterns good or bad? Hurtful or helpful to students, institutions?
• How do features of patterns relate to postsecondary outcomes? Is switching disruptive?
Clustering patterns

• Based on features such as changing from FT to PT, consecutive FT and PT, length of tenure, where non-enrollment appears

• K-means, 6 clusters

• Provide more parsimonious viewpoint
## Clusters of enrollment patterns

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Example</th>
<th>Most Frequent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01....1....1..........</td>
<td>1................</td>
</tr>
<tr>
<td>2</td>
<td>00....00.........</td>
<td>0................</td>
</tr>
<tr>
<td>3</td>
<td>11011011..10110...</td>
<td>10................</td>
</tr>
<tr>
<td>4</td>
<td>11.1101110.........</td>
<td>11011............</td>
</tr>
<tr>
<td>5</td>
<td>11.11.11..1.........</td>
<td>11................</td>
</tr>
<tr>
<td>6</td>
<td>00.00.00.00.00.0.....</td>
<td>00.................</td>
</tr>
</tbody>
</table>
Credential Rates

Cluster

Proportion earning credential

0.00
0.05
0.10
0.15
0.20
0.25
0.30

1 2 3 4 5 6
Transfer Rates
Conclusions

• A lot of patterns.

• Persistence and attachment are key. Toggling FT/PT likely not a bad thing.

• Still working on explaining changes in enrollment intensity, but some initial indications that current academic progress results in switching behavior.
For more information

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