Building Transfer Student Success at Macomb Community College

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Donna Pettras, Macomb Community College
Overview and Background
Overview

• Background

• Research design

• RQ #1: What are the characteristics of transfer students?

• RQ #2: What are the enrollment patterns of transfer students?

• RQ #3: What are the predictors of transfer student success?

• Key takeaways
Community College Research Center

A leading independent authority on two-year colleges based at Teachers College, Columbia University. Founded in 1996, CCRC conducts research on the issues affecting community colleges and works with colleges and states to improve student success and institutional performance.

Areas of research include:
• The role of the community college
• High school to college transitions
• Developmental education & adult basic skills
• Student services and financial aid
• Online learning and instructional technology
• Student persistence, completion, & transfer
• College to career and workforce education
• Improving institutional performance
Macomb Community College

Macomb is a high enrollment college with many transfer partners

- 225+ transfer plans
- 40+ transfer partners
- University Center
U-PAC Members/Project Partners

• Eastern Michigan University
• Michigan State University
• Lawrence Technological University
• Ferris State University
• Madonna University
• Oakland University
• Central Michigan University

• University of Detroit–Mercy
• University of Michigan–Dearborn
• Wayne State University
• University of Michigan–Ann Arbor
• Walsh College
• Rochester College
• Western Michigan University

• Thank you to the Kresge Foundation for their support
Project Motivation

Why are we studying transfer?

• Transfer students are at greater risk of not graduating

• Institutional practices around transfer can be barriers to student success

• Macomb is in a “thick” market

• The U-PAC can work together to improve transfer success
Background – Transfer in Michigan

• 28 community colleges, over 400,000 students

• 37% of students transfer to a 4-year, top 10 nationally

• Transfers are critical to Bachelor's degree production in Michigan

  – 43% of all Bachelor's degree completers were enrolled in a 2-year at some point
Background – Transfer in Michigan

Transfer student outcomes:

• 24% of students earn a certificate or Associate degree before transferring

• Graduation rate at public 4-year institutions is 40%

• Graduation rate at private non-profit institutions is 14%

Common barriers to transfer student success

- Financial resources
- Academic preparation
- Lack of information
- Campus climate
- Social integration
Research Design
Goal & Research Questions

Goal:
Understand different types of transfer students, their success rates, and the factors related to success and failure

Research Questions:
1. What are the characteristics of transfer students?
2. What are the enrollment patterns of transfer students?
3. What are the predictors of transfer student completion?
Data

Sources:

- Macomb Community College
- National Student Clearinghouse
- 14 U-PAC Colleges

Limitations:

- Matched by encrypted student id; about 40% of students could not be matched
- GPA calculation; credit accumulation; academic renewal
Selection of the Sample

Student Sample:
• First time in college (FTIC) students
• Enrolled at Macomb between spring 2007 and spring 2009
• Completed 9 or more credits at Macomb
• Transferred between fall 2007 and spring 2009
• Transferred to a U-PAC Institution
# Selection of the Sample

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students enrolled at Macomb between spring 2007 and spring 2009</td>
<td>56,476</td>
</tr>
<tr>
<td>Completed 9 or more credits</td>
<td>47,541</td>
</tr>
<tr>
<td>Transferred between fall 2007 and spring 2009</td>
<td>5,709</td>
</tr>
<tr>
<td>Transferred to a 4-year institution</td>
<td>4,507</td>
</tr>
<tr>
<td>Transferred to a U-PAC institution</td>
<td>3,713</td>
</tr>
</tbody>
</table>
Research Question #1: Characteristics
Research Question #1

What are the characteristics of transfer students?

- Types of transfer
- Demographics (age, gender, financial aid, etc.)
- Credit accumulation
- Completion
Types of transfer students

• **2-4:** Start at Macomb and transfer to exactly one additional college – which is a U-PAC college – for at least one semester

• **2-4-2:** Start at Macomb, transfer to at least one U-PAC college for at least one semester, then back to Macomb

• **Swirler:** Start at Macomb and transfer to least two additional colleges for at least one semester and whose last enrollment term is not at Macomb
Why transfer pattern is important

1. Students who directly transfer (2-4 pattern) are most likely to graduate

2. 2-4-2 transfers and swirlers may spend more time and money than necessary, have little return

3. By examining student characteristics, we can see if transfer patterns are more likely to occur among particular groups
Transfer Pattern Breakdown

- 2-4: N: 2,908 (78%)
- 2-4-2: N: 323 (9%)
- Swirler: N: 348 (13%)
# Age distribution (%) of transfer students

<table>
<thead>
<tr>
<th>Swirler</th>
<th>Less than 18</th>
<th>18-20</th>
<th>21-30</th>
<th>30+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17</td>
<td>49</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>2-4-2 transfer</td>
<td>16</td>
<td>53</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>2-4 transfer</td>
<td>16</td>
<td>48</td>
<td>27</td>
<td>10</td>
</tr>
</tbody>
</table>
# Race distribution (%)

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Missing</th>
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</thead>
<tbody>
<tr>
<td>Swirler</td>
<td>73</td>
<td></td>
<td></td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>2-4-2 transfer</td>
<td>82</td>
<td></td>
<td></td>
<td>4</td>
<td>5 3 10</td>
</tr>
<tr>
<td>2-4 transfer</td>
<td>81</td>
<td></td>
<td></td>
<td>3</td>
<td>4 4 10</td>
</tr>
</tbody>
</table>
Gender distribution (%)

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
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</thead>
<tbody>
<tr>
<td>Swirler</td>
<td>51</td>
<td>46</td>
</tr>
<tr>
<td>2-4-2 transfer</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>2-4 transfer</td>
<td>55</td>
<td>42</td>
</tr>
</tbody>
</table>
## SES and Academic Performance

<table>
<thead>
<tr>
<th></th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFC (zeros excluded)</td>
<td>$26,176</td>
<td>$24,692</td>
<td>$24,902</td>
</tr>
<tr>
<td>% Pell recipient (first term)</td>
<td>15</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Award amount (first term)</td>
<td>$1,342</td>
<td>$1,478</td>
<td>$1,507</td>
</tr>
<tr>
<td>Sample N</td>
<td>2,908</td>
<td>323</td>
<td>482</td>
</tr>
</tbody>
</table>

- High school graduation rates, dual enrollment rates, and placement exam scores are similar for all 3 groups
## Enrollment characteristics

<table>
<thead>
<tr>
<th></th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Matriculation term (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>59</td>
<td>62</td>
<td>61</td>
</tr>
<tr>
<td>Spring</td>
<td>21</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Summer</td>
<td>20</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td><strong>Matriculation year (%)</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2003</td>
<td>17.2</td>
<td>13.7</td>
<td>12.3</td>
</tr>
<tr>
<td>2004</td>
<td>19.4</td>
<td>18.6</td>
<td>19.7</td>
</tr>
<tr>
<td>2005</td>
<td>23.6</td>
<td>20.2</td>
<td>22.1</td>
</tr>
<tr>
<td>2006</td>
<td>22.2</td>
<td>26.7</td>
<td>25.5</td>
</tr>
<tr>
<td>2007</td>
<td>13.1</td>
<td>11.8</td>
<td>14.2</td>
</tr>
<tr>
<td>2008</td>
<td>3.4</td>
<td>3.4</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>% missing U-PAC transcript</strong></td>
<td>41.2</td>
<td>40.2</td>
<td>42.5</td>
</tr>
<tr>
<td><strong>Sample N</strong></td>
<td>2,908</td>
<td>323</td>
<td>482</td>
</tr>
</tbody>
</table>
Takeaways: Characteristics

• Swirlers are more likely to be students of color

• 2-4-2 transfers and swirlers are more likely to be Pell recipients and have a lower EFC

• The 3 types have similar academic performance

• Most transfers matriculate in the fall

• Over 30% of transfer students were on campus for 3+ yrs
Field of study for transfer students

- Art, Humanities, and English
- Business and Marketing
- Allied Health
- Education and Child Care
- Engineering and Architecture
- NA
- Social and Behavioral Sciences
- Engineering/Science Technologies
- Nursing
- Protective Services
- Computer and Information Science
- Mathematics and Science (STEM)
- Other Career and Technical
- Mechanics and Repair
- Secretarial and Administrative Services
- Communications and Design
- Culinary Services
- Manufacturing
- Automotive and Aeronautical Technology
Field of study for transfer students

- Business and Marketing
- Allied Health
- Education and Child Care
- Engineering and Architecture
- Social and Behavioral Sciences
- Engineering/Science Technologies
- Nursing
- Protective Services
- Computer and Information Science
- Mathematics and Science (STEM)
- Other Career and Technical
- Mechanics and Repair
- Secretarial and Administrative Services
- Communications and Design
- Culinary Services
- Manufacturing
- Automotive and Aeronautical Technology

0 50 100 150 200 250 300 350
Credits earned by transfer type

At Macomb pre-transfer:
- 2-4: 50
- 2-4-2: 43
- Swirler: 43

At U-PAC:
- 2-4: 82
- 2-4-2: 44
- Swirler: 38

Total:
- 2-4: 140
- 2-4-2: 92
- Swirler: 89
% earning more than…

- 60 credits at Macomb
  - Swirler: 0
  - 2-4-2: 15
  - 2-4: 39

- 60 credits at U-PAC
  - Swirler: 0
  - 2-4-2: 15
  - 2-4: 71

- 60 credits at Macomb and U-PAC
  - Swirler: 0
  - 2-4-2: 15
  - 2-4: 23

- 120 credits
  - Swirler: 0
  - 2-4-2: 15
  - 2-4: 71
Credits upon return to Macomb

- **Attempted**: 22
- **Earned**: 19

![Bar Chart]

- Swirler
- 2-4-2
GPA before and after transfer

Macomb
Cumulative pre-transfer
2.7
2.8

Cumulative post-transfer
3.0
3.2

U-PAC
Cumulative post-transfer
2.4
2.5

Swirler  2-4-2  2-4
Credential attainment (%)

- Any credential pre-transfer: 73.7%
- Associate degree pre-transfer: 8.6%
- Two-year award post transfer: 9.9%
- Bachelor’s degree: 12%

For different programs:
- 2-4: 11.2%
- 2-4-2: 14.2%
- Swirler: 12%
Takeaways: **Credit accumulation & GPA**

- 2-4 transfers have better GPA than 2-4-2 and swirlers at Macomb and at their U-PAC destinations

- The vast majority of students accumulate at least some excess credits before and after transferring

- 2-4 transfers complete at the highest rates, 74%
Research Question #2: Enrollment patterns
Research Question #2

What are the enrollment patterns of transfer students?

• # of colleges attended, enrollment intensity, outcomes

• By destination

• Major/degree area before and after transfer
Time spent in public vs private institutions

<table>
<thead>
<tr>
<th>Control</th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of time at public institution</td>
<td>88.4</td>
<td>93.6</td>
<td>82.4</td>
</tr>
<tr>
<td>% of time at private institution</td>
<td>11.6</td>
<td>6.4</td>
<td>17.8</td>
</tr>
</tbody>
</table>
Time Spent in 2- Versus 4-year Institutions

- Swirler: 35% time spent at 2yr institution, 65% enrollment spent at 4yr institution
- 2-4-2: 54% time spent at 2yr institution, 47% enrollment spent at 4yr institution
- 2-4: 28% time spent at 2yr institution, 72% enrollment spent at 4yr institution

- % of time spent at 2yr institution
- % of enrollment spent at 4yr institution
# Enrollment intensity

<table>
<thead>
<tr>
<th></th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>% of terms actively enrolled</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before transfer</td>
<td>60.5</td>
<td>60.2</td>
<td>58.2</td>
</tr>
<tr>
<td>After transfer</td>
<td>96.5</td>
<td>84.8</td>
<td>82.1</td>
</tr>
<tr>
<td><strong>% enrolling full-time in first term at Macomb</strong></td>
<td>38</td>
<td>36</td>
<td>37</td>
</tr>
</tbody>
</table>
Associate degree recipient rates & timing by U-PAC destination

<table>
<thead>
<tr>
<th>U-PAC</th>
<th>% earned before transfer</th>
<th>% earned after transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>8%</td>
<td>33%</td>
</tr>
<tr>
<td>C</td>
<td>5%</td>
<td>32%</td>
</tr>
<tr>
<td>F</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>N</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>G</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>K</td>
<td>8%</td>
<td>14%</td>
</tr>
<tr>
<td>D</td>
<td>7%</td>
<td>15%</td>
</tr>
<tr>
<td>L</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>A</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>M</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>J</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>B</td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td>I</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>E</td>
<td>4%</td>
<td>3%</td>
</tr>
</tbody>
</table>

% earned before transfer  % earned after transfer
% Concurrently enrolling in 2 institutions at some point

- 2-4: 13%
- 2-4-2: 46%
- Swirler: 23%
% of students with a matching field of study at Macomb and U-PAC

<table>
<thead>
<tr>
<th></th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>56.2</td>
<td>53.3</td>
<td>55.6</td>
</tr>
</tbody>
</table>
Transfer type by U-PAC destination

<table>
<thead>
<tr>
<th>Transfer Type</th>
<th>2-4</th>
<th>2-4-2</th>
<th>Swirl</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>93%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>L</td>
<td>92%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>J</td>
<td>90%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>I</td>
<td>87%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>G</td>
<td>84%</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>K</td>
<td>75%</td>
<td>6%</td>
<td>19%</td>
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<tr>
<td>N</td>
<td>74%</td>
<td>10%</td>
<td>16%</td>
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<tr>
<td>D</td>
<td>72%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>A</td>
<td>68%</td>
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<td>M</td>
<td>62%</td>
<td>14%</td>
<td>23%</td>
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<tr>
<td>F</td>
<td>58%</td>
<td>11%</td>
<td>32%</td>
</tr>
<tr>
<td>C</td>
<td>55%</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td>B</td>
<td>53%</td>
<td>16%</td>
<td>31%</td>
</tr>
<tr>
<td>H</td>
<td>50%</td>
<td>8%</td>
<td>42%</td>
</tr>
</tbody>
</table>
Transfer-in graduation rates (%)
Bachelor recipient rates and GPA by destination

- Graduation rate (%)
- Pre-transfer cumulative GPA at Macomb
- Post-transfer cumulative GPA at UPAC schools
Credits earned by destination

- Macomb credits earned
- U-PAC credits earned
Fields of study across U-PAC destinations

- Art, Humanities, and English
- Mathematics and Science (STEM)
- Social and Behavioral Sciences
- Agriculture and natural resources
- Business and marketing
- Communications and design
- Computer and Information Sciences
- Engineering and architecture
- Engineering/science technologies
- Education and child care
- Allied Health
- Transportation
- Protective services
- Other career-technical
Some U-PAC schools are destinations for specific fields

<table>
<thead>
<tr>
<th>Field</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering/Science</td>
<td>62%</td>
</tr>
<tr>
<td>Allied Health</td>
<td>60%</td>
</tr>
<tr>
<td>Allied Health</td>
<td>65%</td>
</tr>
<tr>
<td>Business and marketing</td>
<td>80%</td>
</tr>
</tbody>
</table>

- ART, Humanities, and English
- Mathematics and Science (STEM)
- Social and Behavioral Sciences
- Agriculture and natural resources
- Business and marketing
- Communications and design
- Computer and Information Sciences
- Engineering and architecture
- Engineering/Science technologies
- Education and child care
- Allied Health
- Transportation
- Protective services
- Other career-technical
Some U-PAC schools are destinations of many fields of study
Transfer students and BA recipients by U-PAC destination

- % of all transfers
- % of all bachelor's recipients

<table>
<thead>
<tr>
<th>U-PAC Destination</th>
<th>% of All Transfers</th>
<th>% of All Bachelor's Recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>37%</td>
<td>44%</td>
</tr>
<tr>
<td>N</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>10%</td>
<td></td>
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<tr>
<td>A</td>
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<td>M</td>
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</tbody>
</table>

Legend:
- % of all transfers
- % of all bachelor's recipients
Field of study at Macomb for transfers who earn a Bachelor’s degree

- Allied Health
- Art, Humanities, and English
- Business and marketing
- Computer and Information Sciences
- Education and child care
- Engineering and architecture
- Engineering/science technologies
- Mathematics and Science (STEM)
- Protective services
- Social and Behavioral Sciences
Field of study at Macomb for transfers who do not earn a Bachelor’s degree

- Allied Health
- Art, Humanities, and English
- Business and marketing
- Computer and Information Sciences
- Education and child care
- Engineering and architecture
- Engineering/science technologies
- Mathematics and Science (STEM)
- Protective services
- Social and Behavioral Sciences

Swirler  2-4
Takeaways: Enrollment Patterns

- Students with a 2-4 pattern spend less time at Macomb, 2-4-2 transfers spend the most

- Upon arriving at their destination, stopping out is more common among students who swirl or 2-4-2 transfer

- A low percentage of students earn an Associate before transferring
Takeaways: **Enrollment Patterns**

- 71% of the transfers from Macomb attend just 3 institutions

- Two destinations account for ~70% of all transfers that earn a Bachelor’s

- Transfer patterns and graduation rates vary greatly across destinations

- 2-4 transfers who never earn a degree are most likely to come from Business and Arts and Humanities
Research Question #3: Predictors
Research Question 3

What are the predictors of transfer student success?

• Outcomes
  – Type of transfer
  – Degree completion

• Covariates
  – Type of transfer student
  – Student characteristics
  – Enrollment patterns
## Predicting Transfer Patterns

<table>
<thead>
<tr>
<th>Predictor</th>
<th>2-4-2</th>
<th>Swirler</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.03</td>
<td>-0.01**</td>
</tr>
<tr>
<td>Black</td>
<td>-0.07</td>
<td>0.03</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.01</td>
<td>-0.03</td>
</tr>
<tr>
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<td>GPA in term 1</td>
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<td>-0.02**</td>
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</tbody>
</table>

*P < 0.05, **P < 0.01, ***P < 0.001
Takeaways: **Predictors of transfer type**

- Older students are more at risk of reverse transferring

- Lower income students are more likely to swirl and less likely to 2-4-2 transfer

- Lower GPA students are more likely to swirl
## Predicting Student Success

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Bachelor’s</th>
<th>Associate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4-2 transfer</td>
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*P < 0.05, **P < 0.01, *** P < 0.001
# Predicting Student Success

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Bachelor’s</th>
<th>Associate</th>
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<td>Majors control</td>
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</tbody>
</table>

- Observations: 3,638
- R-squared: 0.170
- R-squared: 0.167

\*P < 0.05, \*\*P < 0.01, \*\*\* P < 0.001
Takeaways: Predictors of degree completion

- 2-4-2 and swirlers are 30-40 percentage points less likely than 2-4 to earn a Bachelor’s. They are more likely to earn an Associate degree.

- Women are more likely than men to earn a Bachelor’s or Associate degree.

- Dual enrollment and full time enrollment students were more likely to earn a Bachelor’s.

- Younger students are more likely to earn a Bachelor’s, and less likely to earn an Associate degree.
Overall
Takeaways
Big Takeaways

• The graduation rate among direct transfers is 74% and 43% for swirlers

• After accounting for student background characteristics, students who 2-4 transfer are much more likely to complete a Bachelor's degree

• Across U-PAC schools the majority of transfers follow a 2-4 pattern, but some schools have substantial amounts of 2-4-2 and swirlers

• All types of transfer students appear to be earning more credits than they need