Measuring Momentum
Early indicators of longer-term student success

Ohio SSLI Meeting
February 9, 2017  Columbus State

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Community College Research Center
Early Momentum Metrics

1) **Credit momentum** – % of FTEIC students who attempt 15/30 credits in one term/year

2) **Gatekeeper momentum** – % of FTEIC students who pass college-level English/math (or both) in one year

3) **Program momentum** – % of FTEIC students who pass at least 9 college-credit hours in the student’s field of study in one year
Credit Momentum
Credit Momentum

Figure 1. Credits Accumulated by Semester
Community College Students

TBR data, fall 2008 cohort.

Source: Belfield, Jenkins, Lahr, 2016.
## Momentum Pays for CC Students

### Effects* of Momentum on Six-Year Outcomes
Tennessee Community Colleges, FTEIC Fall 2008 Cohort

<table>
<thead>
<tr>
<th></th>
<th>1st semester momentum</th>
<th>1st year momentum</th>
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</thead>
<tbody>
<tr>
<td>Additional credits earned</td>
<td>8</td>
<td>22</td>
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<tr>
<td>Probability of degree attainment</td>
<td>7pp (27% vs. 34%)</td>
<td>18pp (25% vs. 43%)</td>
</tr>
<tr>
<td>Tuition and fees per degree</td>
<td>-9%</td>
<td>-20%</td>
</tr>
<tr>
<td>Expenditures per degree</td>
<td>-9%</td>
<td>-14%</td>
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<tr>
<td>Tuition and fees avg.</td>
<td>+$620</td>
<td>+$1,740</td>
</tr>
</tbody>
</table>

*Adjusted results, controlling for student characteristics

Source: Belfield, Jenkins, Lahr, 2016.
Gatekeeper Momentum
Completion of Gateway Math by ACT Sub-score
Pre-requisite Model vs. Co-requisite Model
TBR Co-requisite Full Implementation

<table>
<thead>
<tr>
<th>ACT Sub-score</th>
<th>Full Implementation - Fall 2015</th>
<th>Full Implementation Fall &amp; Spring 2015-16</th>
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</thead>
<tbody>
<tr>
<td>&lt;14</td>
<td>2.7%</td>
<td>2.7%</td>
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<tr>
<td>14</td>
<td>3.8%</td>
<td>3.8%</td>
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<tr>
<td>15</td>
<td>6.8%</td>
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<td>16</td>
<td>11.5%</td>
<td>11.5%</td>
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<tr>
<td>17</td>
<td>19.7%</td>
<td>25.6%</td>
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<tr>
<td>18</td>
<td>13.1%</td>
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<tr>
<td>No ACT</td>
<td>12.3%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Total</td>
<td>54.8%</td>
<td>51.7%</td>
</tr>
</tbody>
</table>

9479 Students
7422 Students

Source: Denley, TBR, 2016
Accelerating College Entry

College Math Taken by Students in Tennessee Community Colleges
Co-Requisite Scale Implementation, Fall 2015

- Probability and Statistics: 64%
- Math for Liberal Arts: 14%
- Algebra: 21%

Source: Belfield, Jenkins, Lahr (2016)
Completion of Gateway English by ACT Sub-score

TBR Co-requisite Full Implementation

<table>
<thead>
<tr>
<th>Sub-score</th>
<th>Full Implementation - Fall 2015</th>
<th>Full Implementation Fall &amp; Spring 2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=13</td>
<td>25.3%</td>
<td>50.1%</td>
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<tr>
<td>14</td>
<td>27.8%</td>
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<tr>
<td>15</td>
<td>33.2%</td>
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<td>16</td>
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<td>17</td>
<td>37.8%</td>
<td>67.1%</td>
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<tr>
<td>No ACT</td>
<td>25.1%</td>
<td>58.4%</td>
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<tr>
<td>Total</td>
<td>30.9%</td>
<td>61.8%</td>
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</tbody>
</table>

6071 Students

Source: Denley, TBR, 2016
Incoming Freshmen who successfully completed their Math and Writing requirements in their 1st Academic Year.
Community College Graduation Rates

1st yr - Did not pass all 3 courses
18%

1st yr - Passed all 3 courses
48%

Freshmen completion of:
• English Composition I
• English Composition II
• A General Education satisfying Math Class
Program Momentum
Credit Transfer Efficiency

• Important to understand: both a barrier to completion and source of extra cost

• Measures of credit transfer efficiency:
  – **Transferability**: Credits are accepted at receiving institution
  – **Applicability**: Credits are counted toward major/degree at receiving institution
  – **Excess Credit**: Students attempted/earned more credits than the total required for their degree

• APPAM 2016: Exploratory study of excess credits among BA completers who started a two- and four-year institutions in two states:
  – Created a rich set of variables to capture the curricular pathways students take in pursuing a bachelor’s degree
  – Used data mining techniques to identify variables associated with efficient or inefficient bachelor’s degree pathways
  – Dependent Variable: Excess Credits among BA completers
Simplified Partition Tree: 
State B, 2-year Entrants, Excess Credits Attempted

9500 students, 
\( M = 27.2, SD = 22.8 \)

- <44% of credits earned before 60 credits were 100 level
  - 4743 students, 
    \( M = 20.9, SD = 20.0 \)
    - <10% of credits attempted before 60 credits were 200 level
      - 1282 students, 
        \( M = 12.4, SD = 14.7 \)
    - >10% of credits attempted before 60 credits were 200 level
      - 3461 students, 
        \( M = 24.1, SD = 20.7 \)
- >44% of credits earned before 60 credits were 100 level
  - 4757 students, 
    \( M = 33.5, SD = 23.7 \)
    - >85% of CC credits earned were in the Transfer Library
      - 2007 students, 
        \( M = 25.2, SD = 19.6 \)
      - Did not take a 100-level Math course after 60 credits
        - 1891 students, 
          \( M = 35.2, SD = 23.2 \)
    - <85% of CC credits earned were in the Transfer Library
      - 2750 students, 
        \( M = 39.6, SD = 24.5 \)
      - Took a 100-level Math course after 60 credits
        - 859 students, 
          \( M = 49.4, SD = 24.5 \)

Simplified Partition Tree:
State A, 2-year Entrants, Excess Credits Attempted

Career Communities

Why Career Communities?

Career Communities will give you opportunities to:

- EXPLORE and CONNECT with your career and academic goals
- MEET students with similar interests
- ENGAGE with faculty members and employers in your career area
- CONSULT with an advisor who specializes in the programs in a particular career community
- UNDERSTAND the resources at Sinclair

FALL 2016: CAREER COMMUNITY EVENTS

Sinclair has 6 Career Communities:

- Business & IT
- Creative Arts
- Health Sciences
- Liberal Arts & Social Sciences (LASS)
- Public Safety & Justice
- Science, Technology, Engineering & Math (STEM)

Browse Programs by Career Community
Welcome to your Career Connection!

Do you want to discover your career options? Navigate the way to your dream job ahead! The Career Connection is your gateway to career resources at Sinclair College.

I want to...

Use the Career Connection to...

**EXPLORE**
Career Fields and Options

**PLAN**
My Academic and Career Pathway

**GAIN**
Experience with an Internship or Other Options

**FINISH**
and Get a Job or Transfer to a 4-year College

**STEPS**
- Get Ready for Success
- Get Ready to Transfer
- Find Your Job and Get Hired

**TOOLS**
- Job Checklist
- Transfer Checklist
- Resumes
- Interviews
- Job Search
- Schedule an Appointment with an Advisor

Find a job

Take the next steps toward putting your skills to work.
Promising Evidence from Ohio

Percentage of students who completed at least nine credit hours in a program declared in their first year – Sinclair Community College

Source: Sinclair Community College.
Promising Evidence from Ohio

Sinclair CC 6-year Completion Rate: Fall Term New Students

- **Completed < 9 program credits in Yr. 1**
  - AY 2010-11: 9%
  - AY 2011-12: 8%

- **Completed 9+ program credits in Yr. 1**
  - AY 2010-11: 40%
  - AY 2011-12: 41%

Source: Sinclair Community College.
Incoming Freshmen Who Successfully Completed at Least 9 hours in Their Focus Area During Their 1st Academic Year

**Community College Freshmen**

- 20%  (2009-10)
- 18%  (2010-11)
- 21%  (2011-12)
- 21%  (2012-13)
- 22%  (2013-14)
- 25%  (2014-15)
- **32%**  (2015-16)

**Community College Minority Freshmen**

- 9%   (2009-10)
- 7%   (2010-11)
- 8%   (2011-12)
- 10%  (2012-13)
- 11%  (2013-14)
- 15%  (2014-15)
- **19%**  (2015-16)

Source: Denley, TBR, 2016
Community College Graduation Rates

- 1st yr - Did not attempt 9hrs in focus area: 16%
- 1st yr - Attempted 9hrs in focus area: 34%
- 1st yr - Earned 9hrs in focus area: 40%
Early Momentum Mindsets

Credit momentum:
- From full-time vs. part-time to “on-plan” vs. “off-plan”
- From current semester courses to full-program plan
- From scheduling available courses to scheduling courses needed for plan

Gatekeeper momentum:
- From pre-requisite remediation to co-requisite support
- From academic assessment to holistic assessment

Program momentum:
- From gen eds to meta-majors
- From math and English gateways to critical program courses
Key Performance Indicators (KPIs)
KPIs

- FTEIC students cohort ("first-time ever in college")
- Include all students enrolled in at least 1 course
- Exclude dual enrollment students
- Measured over 1 year
KPIs

- **Credit momentum**
  - 6+ college credits in 1st term
  - 12+ college credits in 1st term
  - 15+ college credits in 1st year
  - 24+ college credits in 1st year
  - 30+ college credits in 1st year

- **Gatekeeper momentum**
  - Completed college math in year 1
  - Completed college English in year 1
  - Completed both college English & college math in Year 1

- **Persistence and Course pass rate**
  - Persisted Term 1 to Term 2
  - College credits earned vs. attempted in first year
KPIs

FTEIC students earning 6+ credits in first term

- 2010: 50%
- 2011: 61%
- 2012: 52%
- 2013: 57%
- 2014: 54%
- 2015: 58%

OACC average
KPIs

**FTE|C students earning 12+ credits in first term**

- 2010: 23%
- 2011: 29%
- 2012: 30%
- 2013: 25%
- 2014: 26%
- 2015: 28%

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**OACC average**
KPIs

FTEIC students earning 12+ credits in year 1

- 2010: 39%
- 2011: 42%
- 2012: 43%
- 2013: 49%
- 2014: 45%
- 2015: 48%

OACC average
KPIs

FTEIC students earning 24+ credits in year 1

- 2010: 10%
- 2011: 11%
- 2012: 15%
- 2013: 18%
- 2014: 16%
- 2015: 18%

OACC average
KPIs

FTEIC students earning 30+ credits in year 1

- 2010: 2%
- 2011: 2%
- 2012: 2%
- 2013: 5%
- 2014: 4%
- 2015: 5%

Comparing to OACC average:
- 2010: 5%
- 2011: 4%
- 2012: 4%
- 2013: 5%
- 2014: 5%
- 2015: 5%
KPIs

FTE/IC students passing college English in 1 year

2010 | 2011 | 2012 | 2013 | 2014 | 2015
---|---|---|---|---|---
52% | 51% | 50% | 50% | 61% | 61%
46% | 43% | 49% | 54% | 56%
KPIs

FTEIC students passing college math in 1 year

- 2010: 20%
- 2011: 20%
- 2012: 18%
- 2013: 20%
- 2014: 22%
- 2015: 25%

OACC Average:
- 2010: 31%
- 2011: 32%
- 2012: 32%
- 2013: 33%
- 2014: 32%
- 2015: 40%
KPIs

FTEIC students passing college math AND English in 1 year

- 2010: 8%
- 2011: 8%
- 2012: 7%
- 2013: 7%
- 2014: 9%
- 2015: 10%

- 2010: 11%
- 2011: 11%
- 2012: 11%
- 2013: 12%
- 2014: 12%
- 2015: 15%

- OACC Average
KPIs

FTEIC students persisting term 1 to term 2

- 2010: 62%
- 2011: 50%
- 2012: 66%
- 2013: 67%
- 2014: 65%
- 2015: 64%

Blue line: [Blank]
Red line: OACC Average
KPIs

College credits attempted per FTEIC student

<table>
<thead>
<tr>
<th>Year</th>
<th>Credits Attempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>18.4</td>
</tr>
<tr>
<td>2011</td>
<td>17.8</td>
</tr>
<tr>
<td>2012</td>
<td>17.8</td>
</tr>
<tr>
<td>2013</td>
<td>18.0</td>
</tr>
<tr>
<td>2014</td>
<td>17.7</td>
</tr>
<tr>
<td>2015</td>
<td>17.8</td>
</tr>
</tbody>
</table>

- **Blue line**: ACT Average
- **Red line**: OACC Average
KPIs

College credits completed per FTEIC student

- 2010: 10.4
- 2011: 11.1
- 2012: 10.6
- 2013: 12.0
- 2014: 11.1
- 2015: 12.1

OACC Average
KPIs

Credit pass rate for FTEIC students

- 2010: 59%
- 2011: 68%
- 2012: 62%
- 2013: 65%
- 2014: 64%
- 2015: 68%

OACC Average: 67%, 68%, 67%, 69%, 71%, 73%
For more information

Please visit us on the web at

http://ccrc.tc.columbia.edu

where you can download presentations, reports, and briefs, and sign-up for news announcements.

We're also on Facebook and Twitter.

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E-mail: ccrc@columbia.edu Telephone: 212.678.3091
Baseline Adoption of Guided Pathways Essential Practices
1a. Every program is well-designed to guide and prepare students to enter employment and further education in fields of importance to the college's service area.

1b. Detailed information is provided on the college's website on the employment and further education opportunities targeted by each program.

1c. Programs are clearly mapped out. Students know which courses they should take and in what sequence. Courses critical for success in each program and other progress milestones are identified. This information is accessible on the college's website.
2a. Every new student is helped to explore career/college options, choose a program of study and develop a full-program plan as soon as possible.

2b. Special supports are provided to help academically unprepared students to succeed in the “gateway” courses for the college’s major program areas—not just in college-level math and English.

2c. Required math courses are appropriately aligned with the student’s field of study

2d. Intensive support is provided to help very poorly prepared students to succeed in college-level courses as soon as possible

2e. College works with high schools and other feeders to motivate and prepare students to enter college-level coursework in a program of study when they enroll in college.
3a. The college monitors which program every student is in and how far along he/she is toward completing their program plan.

3b. Students can easily see how far they have come and what they need to do to complete their program.

3c. The college is able to identify when students are at risk of falling off their program plans and has policies and supports in place to intervene in ways that help students get back on track.

3d. Assistance is provided to students who are unlikely to be accepted into limited access programs such as nursing to redirect to another more viable path to credentials and a career.

3e. The college schedules courses to ensure students can take the courses they need when they need them, can plan their lives around school from one term to the next, and can complete their programs in as short a time as possible.
Ensuring Students are Learning
October 2016, N=23

4a. Learning outcomes are clearly defined for each of our programs (not just courses).
4b. Learning outcomes are aligned with the requirements for success in the further education and employment outcomes targeted by each program.
4c. Faculty assess whether students are mastering learning outcomes and building skills across each program.
4d. Faculty use the results of learning outcomes assessment to improve the effectiveness of instruction in their programs.
4e. The college tracks mastery of learning outcomes by individual students and that information is easily accessible to students and faculty.
4f. The college assesses effectiveness of educational practice (e.g., using CCSSE or SENSE, etc.) and uses results to create targeted professional development.
Strengthening Dual High School Enrollment as an On-Ramp to College
Percent of Community College Entrants who are in High School Dual Enrollment, by State

- CC Entrants: 17 or younger
- CC Entrants: 18 or older

States are listed in alphabetical order.
Percent of Community College Entrants who are in High School Dual Enrollment, by State

- **CC Entrants: 17 or younger**
- **CC Entrants: 18 or older**

States are listed in descending order of the percentage of entrants in dual enrollment for those 17 or younger. The US Overall indicates the average for all states.

- **US Overall**: 15%
- **OH**: 12%
- **Other states** vary from 0% to 40%.
Former Dual Enrollment Students' First College Matriculations at Ages 18-20, by State
Former Dual Enrollment Students' First College Matriculations at Ages 18-20, by State

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Community College  4-yr College  No Enrollments

US Overall 42% 38% 14%

CA 49% 14% 9%

NV NV 48% 49% 14%
Degree Completion Rates among Former Dual Enrolled 17 year-olds who first matriculated at a community college at ages 18-20, by state and income

- **Highest Degree in Six Years**
  - Earned CC Award
  - Earned Bachelors

- **Any Degree in Six Years**
  - Lower-income Students
  - Higher-income Students
Degree Completion Rates among Former Dual Enrolled 17 year-olds who first matriculated at a community college at ages 18-20, by state and income

**Highest Degree in Six Years**
- Earned CC Award
- Earned Bachelors

**Any Degree in Six Years**
- Lower-income Students
- Higher-income Students

US Overall: 19% (CC Award) 21% (Bachelors)

FL: 18% (CC Award) 25% (Bachelors)

MI: 38% (CC Award) 45% (Bachelors)

WA: 38% (CC Award) 44% (Bachelors)

CA: 44% (CC Award) 51% (Bachelors)

NV: 44% (CC Award) 51% (Bachelors)

CA: 44% (CC Award) 51% (Bachelors)

WA: 38% (CC Award) 44% (Bachelors)

US Overall: 38% (CC Award) 44% (Bachelors)

Any state can be selected for detailed analysis.
Figure 7. Degree Completion Rates among Former Dual Enrolled 17 year-olds who first matriculated at a **four-year college** at ages 18-20, by state and income

<table>
<thead>
<tr>
<th>State</th>
<th>Highest Degree in Six Years</th>
<th>Any Degree in Six Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>GA</td>
<td>Earned CC Award</td>
<td>Lower-income Students</td>
</tr>
<tr>
<td>MD</td>
<td>Earned Bachelors</td>
<td>Higher-income Students</td>
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<tr>
<td>FL</td>
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<td>NM</td>
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</table>
Figure 7. Degree Completion Rates among Former Dual Enrolled 17 year-olds who first matriculated at a **four-year college** at ages 18-20, by state and income.