WICHE

Western Interstate Commission for Higher Education

Measuring OER Impact on Student Success

Student completion rates and no-cost and low-cost course materials

Introductions

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- Policy Analyst with the Western Interstate Commission for Higher Education
  - Background in K-12 policy and community-based research

Initial Pilot Study

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Article

No-Cost/Low-Cost and OER Impact on Time-to-Credential

An Event History Modeling Study

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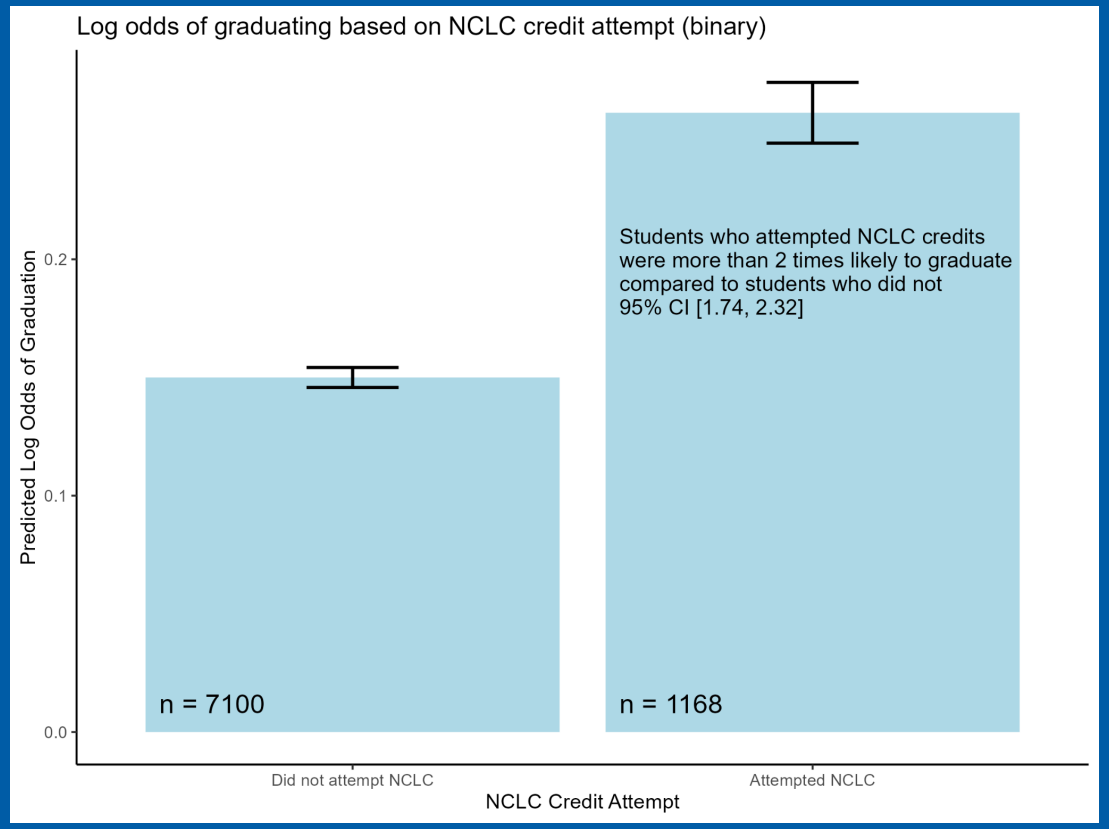
Time-to-Completion: No-Cost/Low-Cost



- **Pilot study**
- **Findings corroborate existing research**
- **Expanding to national study on no-cost/ZTC**

National Study

Previous research included data from one community college.

Current research includes 14 institutions:

- Two community colleges
- Two 4-year universities
- One university system with community colleges and 4-year degrees

The dataset includes 73,065 students, of which, 35% were exposed to NC/LC credits.

	A	B	C	D	E	F	G
1	PROXYID	SITEID	YEAR	TERM	ATCR	CRT	ATDEV
2	000001	SC1	2019	1	15	0	
3	000002	SC1	2019	1	10	6	
4	000002	SC1	2020	1	9	9	
5	000002	SC1	2020	4	3	3	
6	000002	SC1	2021	3	9	3	
7	000002	SC1	2021	4	6	3	
8	000003	SC1	2019	1	3	3	
9	000003	SC1	2020	1	4	4	
10	000003	SC1	2020	3	6	5	
11	000003	SC1	2020	4	3	3	
12	000003	SC1	2021	1	1	1	
13	000003	SC1	2021	3	3	3	
14	000003	SC1	2022	1	6	6	
15	000003	SC1	2022	3	3	3	
16	000003	SC1	2023	1	4	4	
17	000003	SC1	2023	3	6	6	
18	000003	SC1	2023	4	3	3	
19	000004	SC1	2023	1	12	12	
20	000005	SC1	2020	1	3	3	
21	000006	SC1	2019	1	6	6	
22	000006	SC1	2020	1	6	6	
23	000006	SC1	2020	3	6	6	
24	000006	SC1	2021	1	7	7	
25	000006	SC1	2021	4	3	3	

Collecting the Data

- **Data ownership**
  - Book store
  - Faculty
  - Institutional Research
- **Data discrepancies**
  - What do you do with incomplete data?
  - What are your parameters for analysis?
- **Capacity**
  - Institutional Capacity
  - Data security capacity
    - Data sharing agreements

Methodological Considerations

- The researchers created a codebook for the various institutions who provided the de-identified student demographics and academic variables. These variables included:
  - Race/ethnicity
  - Age
  - Pell grant recipient status
  - Grade point average
  - Credits attempted and completed
  - Transfer records
  - Course types and coursemarking whether the courses were course-marked as NCLC.

- The analysis excluded semesters where students took zero credits or were not enrolled. Additionally, students for whom we do not know gender, age, or race were not included in the dataset. Non-binary genders were also excluded due to small data counts that would not allow for meaningful statistical analysis.

Methodological Challenges

Course marking: Data request gave institution the following options:

- No-cost/low-cost (NCLC)
- Zero textbook cost (ZTC) and very low cost (VLC)
- Low course cost (LCC), mid-course cost (MCC), high course cost (HCC)
- OER

None of the fourteen institutions used Low/Medium/High-cost designations. We used NCLC, ZTC and VLC, and OER to signify OER course.

Research Questions

- Is there a relationship between participation in OER courses and the odds that a student completes a degree or transfers from a two-year to a four-year institution?
- Is there a relationship between participation in OER courses and the time it takes a student to complete a degree or transfer?
- Is there a relationship between participation in OER courses and a higher-grade point average?
- Do these patterns differ based on student demographics?

Results

Table: Predicting Student Transfer or Degree Completion: Effects of NCLC, Institution (n = 39,871)

Variable	Estimate	Odds Ratio	Standard Error
Intercept	0.364	1.44	0.599
NCLC course	1.002***	2.724	0.031

Significance levels: *** for p < 0.001, ** for p < 0.01, * for < 0.05, and . p < 0.1.

- The odds of a student transferring or obtaining a degree increases almost threefold for students who took an NCLC course, controlling for the fact that students within the same institution may be more similar than students at other institutions.
- Baseline is non-NCLC course.

When controlling for other variables:

- There was a statistically significant relationship between taking NC/LC courses and degree completion or transfer.
- The odds ratio for that relationship was 2.7

Results

Time to credential:

- We used a negative binomial because this is appropriate for overdispersed count data. The dependent variable is the number of terms completed before a degree or transfer.
- Students that took NCLC courses were associated with more terms to completion. Meaning students had higher odds of taking longer to complete their degree.

Table 6.1: Predicting Terms until Completion: Effects of NCLC, Institution (n = 35,107)

Variable	Estimate	Odds Ratio	Standard Error
Intercept	2.212***	9.13	0.191
NCLC course	0.213***	1.238	0.004

Significance levels: *** for p < 0.001, ** for p < 0.01, * for < 0.05, and . p < 0.1.

- Taking NCLC courses is associated with more terms to completion, controlling for the fact that students within the same institution may be more similar than students at other institutions (random effect for institution).

Students that took NCLC had higher odds of completing their degree, and higher chances of having a GPA over 3.0, though they were more likely to take longer to complete their degree.

THANK YOU!

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