1. Introduction/Context

At the end of March 2020, UCI, like most colleges across the country, transitioned all classes online due to the COVID-19 pandemic.

This transition to Emergency Distance Learning, which affected the end of Winter quarter and all of Spring quarter, was accompanied by several policy changes at the institution: instructors were encouraged to make final assessments optional for students, students were allowed to take any class Pass/No Pass in the Spring quarter, and students living on campus were encouraged to leave.

In this study, we examine the behavioral responses and academic outcomes of students associated with Emergency Distance Learning and the accompanying academic policy changes.

Understanding how different groups of students responded to the social, economic, and health crises, and political upheaval can help administrators to support vulnerable student subgroups and mitigate negative effects of these events by developing policy interventions.

2. Research Questions

RO1: Did students’ enrollment behaviors and academic outcomes in the Spring 2020 emergency distance learning (EDL) term differ from what we would expect, given students’ previous enrollment behaviors and academic outcomes?

RO2: Do we see bigger differences in students’ enrollment behaviors and academic outcomes for certain student subgroups?

3. Method

Regression Models Using Student, Term, and Year Fixed Effects

We use regression models with student, term, and year fixed effects. These models use students as their own comparison, and control for time-invariant student characteristics such as motivation and stress resilience that explain students’ average behaviors and performance. It also controls for the effects of education, which is measured at a certain year, term, and class standing which would affect the outcomes.

These models allow us to examine if students have different enrollment behaviors and academic outcomes in Spring 2020 than expected, given their previous enrollment behaviors and average trends across grades, years, and terms.

4. Data

Outcome Variables

Behavioral Outcomes (Spring 2020):
- The proportion of units that students took Pass/No Pass
- The proportion of units earned P/NP
- Course difficulty: average course-level grade of spring term
- Total course units

Academic Outcomes (Spring 2020):
- Total completed units
- Term GPA

Characteristics of students Obs. Percent
- Gender
- Female 8,293 52%
- Male 7,583 48%
- Ethnicity
- Asian / Asian American 8,557 54%
- Pacific 585 4%
- Hispanic 3,906 25%
- Other 2,297 15%
- Underrepresented Minority Student 473 3%

First Generation College Student 4,698 30%

Low Income Student 4,592 29%

Application Status

Freshman 10,989 69%

Transfer Students 4,887 31%

Cohort (application year)

Fall 2018 7,145 47%

Fall 2019 8,461 53%

International Student 2,728 17%

Online Courses Experience Before Spring 2020 5,531 35%

Total Observations 15,876

5. Results (Student, Term, and Year Fixed Effects Models)

Table 1

<table>
<thead>
<tr>
<th>Enrolment Behaviors (Proportion of Pass/No Pass Units)</th>
<th>Enrolment Behaviors (Courses Difficulty)</th>
<th>Academic Outcomes (Total Completed Units)</th>
<th>Academic Outcomes (Term GPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2020** <em>(0.068)</em> 0.185** 0.134**</td>
<td>(0.068) 0.185**</td>
<td>(0.068) 0.185**</td>
<td>(0.068) 0.185**</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Academic Outcomes: Total Completed Units (an example of the subgroup analysis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2020 First Generation College Student 1.450*** 1.383*** 1.383***</td>
</tr>
<tr>
<td>Winter 0.76** 0.76** 0.76**</td>
</tr>
</tbody>
</table>

6. Conclusion

Enrollment Behaviors:

In Table 1, we can see the main effects of Spring 2020 on four students’ outcomes. In general, students enrolled more Pass/No Pass units, completed more units, and have higher term GPA than expected, given their previous outcomes and average trends across grades, years, and terms.

The results in Table 2 provide an example of subgroup analyses. In this table, we examine different effects for subgroups of students using interaction terms. In this table, we examine total completion of units, and the positive effect for Spring 2020 is larger for female students than male students, smaller for underrepresented minority students than non-underrepresented minority students, smaller for first-generation college students, smaller for transfer students than who entered UCI as freshman.

For three other outcomes not included here, we show the positive effect for Spring 2020 on students’ taking Pass/No Pass units is larger for transfer students than students who entered UCI as freshman, smaller for female students than male students, smaller for underrepresented students than non-underrepresented students, and smaller for first-generation college students than non-first-generation college students.

The positive effect for Spring 2020 on students’ term GPA is smaller for transfer students than who entered UCI as freshman, larger for female students than male students, larger for low-income students than non-low-income students, larger for first-generation college students than non-first-generation college students, and larger for students with online courses experience before Spring 2020 and an online course experience before Spring 2020.

No consistent effect on students’ course enrolled difficulty.

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7. Discussion

Future studies should focus on disentangling the possible mechanisms underlying the observed increase in students’ term GPA in Spring 2020. Possible explanations include: 1. Students with lower academic performances are more likely to take Pass/No Pass; 2. Students strategically enrolled Pass/No Pass for more difficult courses; 3. Instructors could have changed their grading policy; 4. Students could opt out of final assessments.

We tried to control for course difficulty, students’ previous term GPA, the proportion of Pass/No Pass units in the models but still see positive effects for Spring 2020 on students’ term-GPA. To further examine the trend of GPA change is necessary.

A subsample of UCI students is followed with COVID-19 relevant survey questions, which include students’ access to study places which allow them to focus on course work, access to computers and stable internet, and their new responsibilities besides course work in Spring 2020. This in-depth information can help us to better understand what kinds of factors mediate the differential effect we observed on student subgroups’ enrollment behaviors and academic outcomes.

Online Courses Experience Before Spring 2020 means students took at least one online course successfully before Spring 2020.