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Course Closed

Using Waitlists to Study the Effects of Course Shutouts on Community College Students

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AS A PANDEMIC-INFLUENCED economic downturn drives unemployment numbers up, California Community Colleges can anticipate increased demand from students wishing to enroll and retool their skills. While the state budget appears healthy this year, economic forecasts suggest shortfalls ahead. If those shortfalls lead to cuts in funding for higher education, such reductions may hamper colleges' ability to increase capacity and student access at a time when they are needed most.

This dynamic was present in the aftermath of the Great Recession. According to a survey conducted by the Public Policy Institute of California, 88% of California Community College senior administrators believed that funding reductions were harmful to maintaining the number of courses that their institutions offered.[1] Course reductions are made with reluctance, as administrators and policymakers alike express concern that limited course availability hinders student outcomes.

Limited course availability could inconvenience student schedules, delay degree completion or, at worst, increase dropout rates. Although this dynamic might also exist in four-year universities, these concerns are arguably more acute in the community college setting, where open access, low tuition, and a heavy reliance on state funding make budgetary pressure especially likely during economic recessions.

To explore how students are impacted by reduced course availability, we use detailed course and waitlist registration data from a large community college in California to address the following questions:

1. How does being shut out of a course influence student course taking during the same term?
2. How does being shut out of a course affect transfer rates and degree completion in later terms?

TOPLINES

- Community college courses are frequently over-subscribed. In the sample for this study, 68% of STEM course sections and 60% of social science course sections had waitlists.
- Community college students who were shut out of a desired course due to over-subscription were more likely to depart the institution, either by dropping out in the short run or transferring to other institutions in the longer run.
- Community college students who were shut out of a desired course were 25% more likely to drop out that term.
- After one year, students who were shut out of courses were more likely to transfer to other colleges than students not shut out of a desired course. However, for under-represented minority students in particular, much of this effect came through transfer to other two-year, rather than four-year, colleges.

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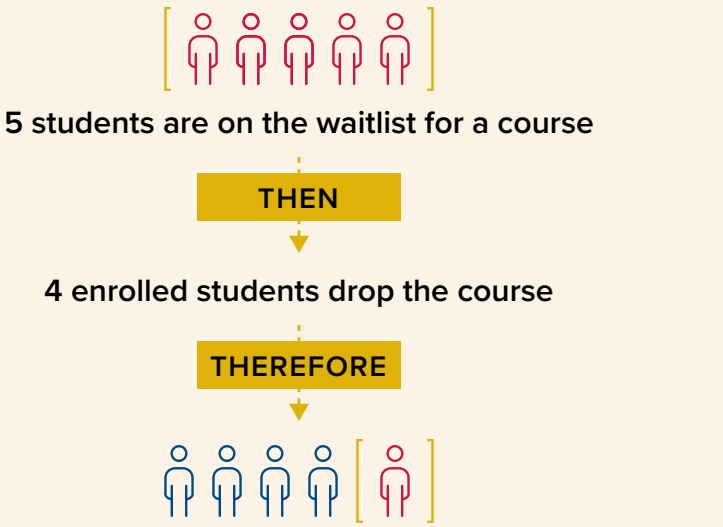
DATA AND METHODS

Quantifying how being shut out of a college course influences student outcomes is challenging because students who have no difficulty enrolling in their desired classes may be very different than those who face obstacles.[2] For example, college students typically enroll in courses based on assigned registration dates, often according to seniority, so we would expect that students who easily enroll in their courses are further along in their studies and therefore more likely to graduate than those who encounter waitlists when they register. The gold standard methodology to tease out causation from these correlations is to conduct a randomized controlled trial whereby one group randomly receives a treatment, like enrollment in a college course, while the other group continues with business as usual. Conducting this type of experiment among college students would raise ethical concerns. There is, however, a naturally occurring feature of course registration that mirrors it.

When a course has hit its enrollment capacity, other students who would like to enroll must sign up for the course waitlist. If an enrolled student drops out of the course, then a waitlisted student can join. For example, if five students were signed up to the waitlist, and four enrolled students dropped out, then four waitlisted students would be able to enroll while one remained on the waitlist. We leverage the notion that the number of enrolled students who drop a course is as good as random, thus creating a clean comparison between the last student able to get off the waitlist and the first student stuck on the waitlist.



Using the above example, any difference in outcomes, such as course-taking or degree completion, between the fourth and fifth students on the waitlist is because the fourth could enroll in the course during the pre-registration period whereas the fifth could not, and is not due to other differences in their educational or socioeconomic background. With this key insight, we compared two groups of waitlisted students: those who were admitted to the course off of the waitlist and those who remained stuck on the waitlist when the term began.[3]

We used data from De Anza Community College that allowed us to observe course registration dynamics between 2002 and 2010. Located in Silicon Valley, De Anza served a diverse population of 14,994 full-time equivalent students in 2017-2018.[4] This study focused on degree-seeking students, examining the first waitlist that students sign up for among students planning to pursue an associate or Bachelor's degree.[5] Courses at De Anza are frequently over-subscribed. Forty-nine percent of all course sections had at least one student sign up on the waitlist, including 68% of STEM sections, 60% of social science sections, and 50% of arts and humanities sections.

To address the first research question, we used information from De Anza to study how being shut out of a course influenced the total number of courses that students took that term and whether they eventually completed an associate degree at De Anza. For the second research question, we used data from the National Student Clearinghouse to determine whether these students transferred to and earned degrees from other two or four-year colleges. Overall, these data sources allowed us to see how limited course availability impacted the complete educational trajectories of community college students.

Findings

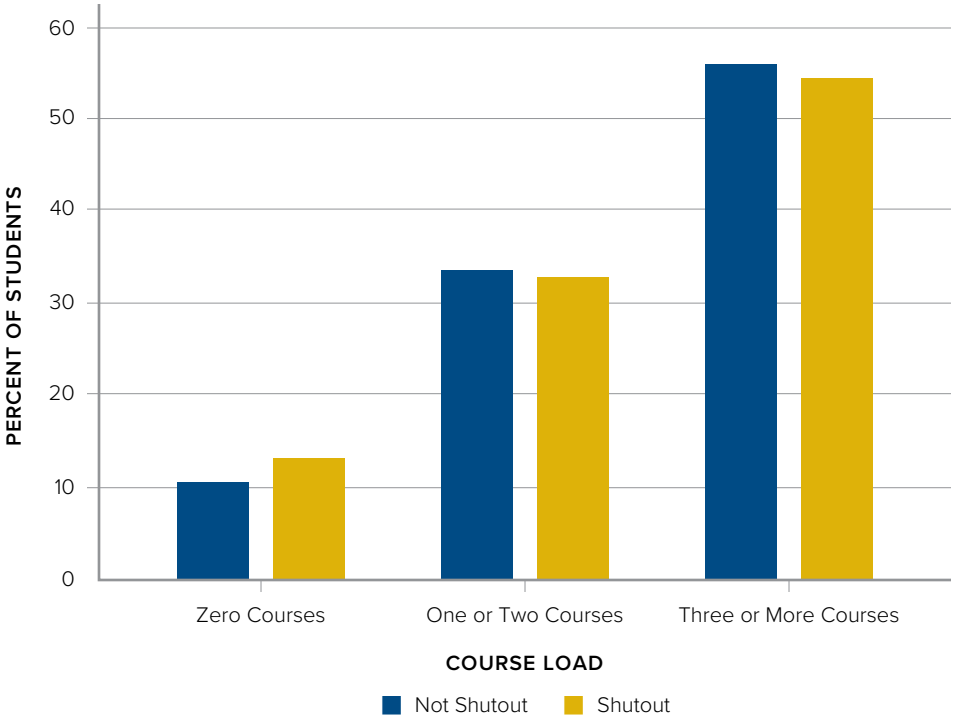
In the short run, students who were not able to enroll in a desired course were 25% more likely to drop out that term.

We first examined how limited course availability influenced student enrollment for the term in which they were waitlisted. Figure 1 shows that about 10% of students who were not shutout of the course (those who were just able to get off the waitlist and enroll during the registration period) enrolled in zero total courses that term. In contrast, 13% of students who were shut out of the course enrolled in zero courses. This means that being shut out of a course increased the likelihood of students dropping out that term by 25%. We also found suggestive evidence that students who were shut out of a course were less likely to enroll part-time (one or two courses) and full-time (three or more courses), though these differences were not statistically significant. Overall, being stuck on a course waitlist reduced the number of courses that students enrolled in, and even caused a significant number of students to drop out of the college altogether during the term.

Some of the students who sat out the term might enroll again in a later term. That is, they might have "stopped-out" temporarily rather than permanently dropped out from college. Therefore, the next analysis explores student outcomes several years after the initial term.

Overall, being stuck on a course waitlist reduced the number of courses that students enrolled in, and even caused a significant number of students to drop out of college altogether during the term.

Figure 1. Effect of course shutouts on course load in the waitlisted term

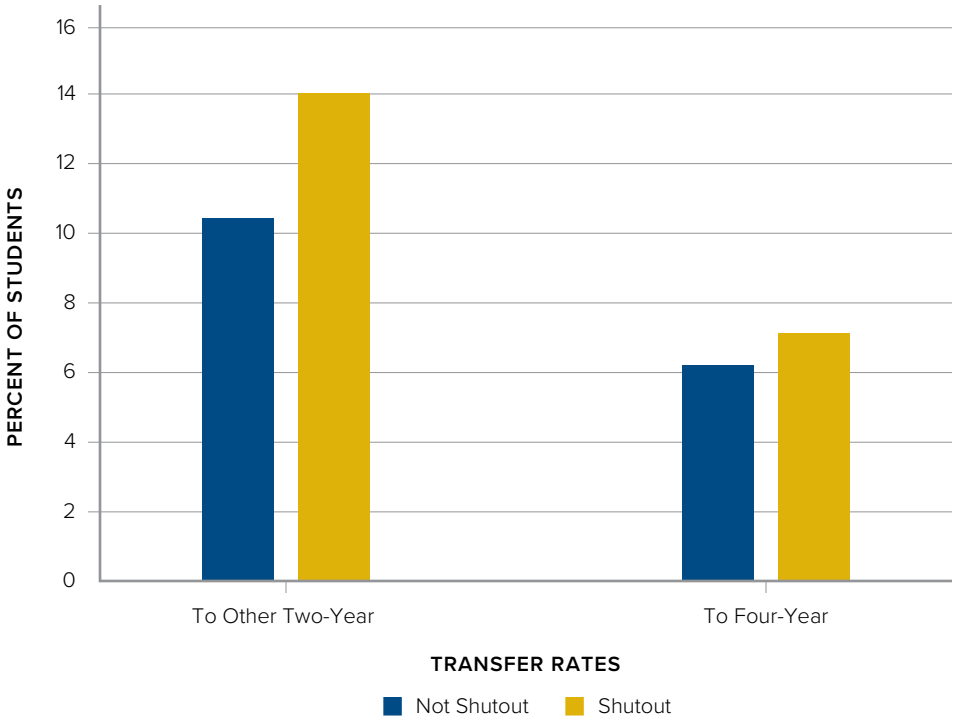


Our analysis revealed that, two years after being shut out, students who were unable to enroll in a course were considerably more likely to transfer to a different two-year college.

After one year, students responded to course shutouts by transferring to other colleges, yet whether they transferred to either a two-year or four-year college varied by student race/ethnicity.

In addition to the short-run results on course taking, we followed students for five years after signing up for the waitlist to explore impacts on transfer rates and degree completion. Students in our study were fortunate to live in a region with many nearby public colleges; there are eight other two-year colleges and one four-year college within 25 miles of De Anza.[6] Our analysis revealed that, two years after being shut out, students who were unable to enroll in a course were considerably more likely to transfer to a different two-year college. Figure 2 shows that compared to 11% of students who could get off the waitlist, 14% of students who were unable to enroll transferred to another two-year college within two years of the waitlist. This represents an increase of 34%. Specifically, students were especially likely to transfer to nearby two-year colleges, including Foothill College, Evergreen Valley College, and San Jose City College. We did not see a noticeable overall impact on transfer rates to four-year colleges, however.

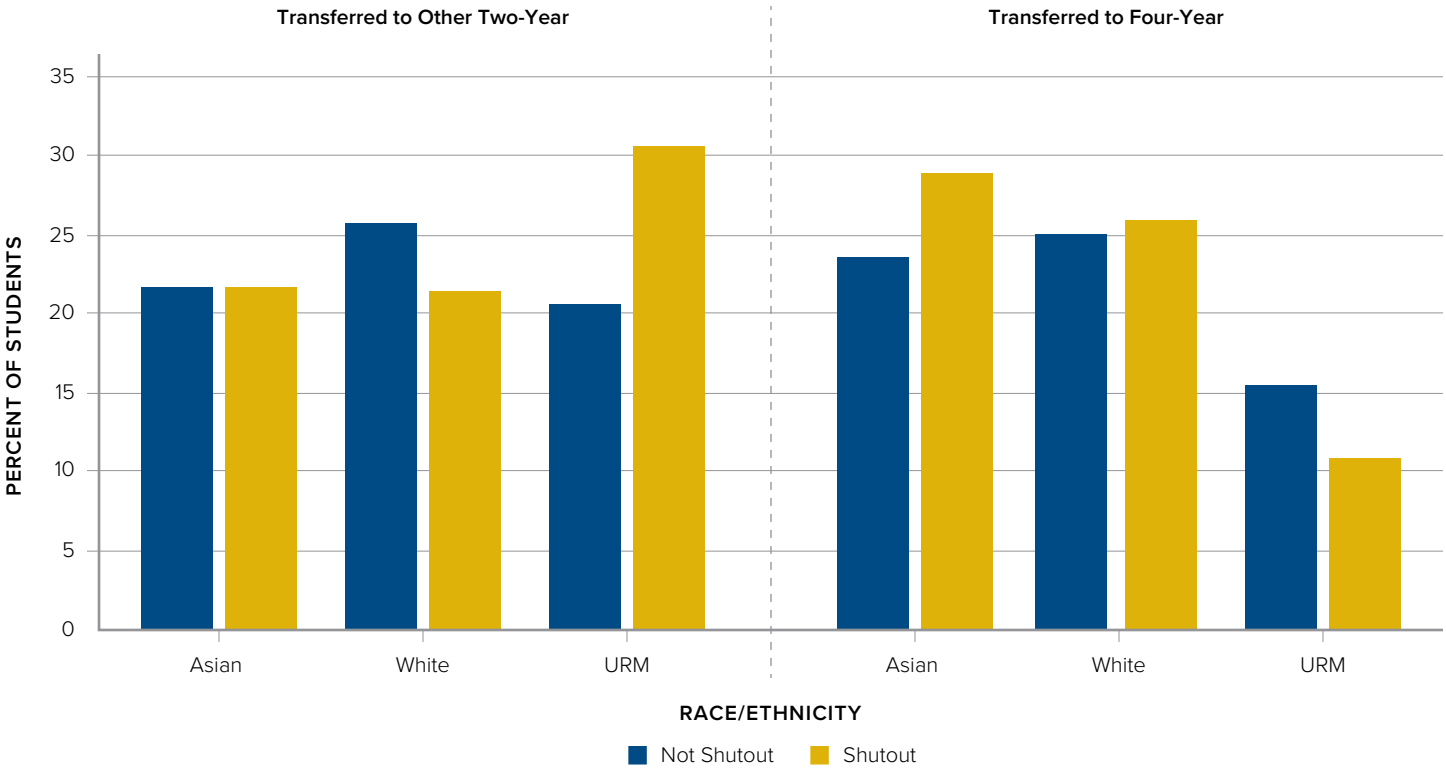
Figure 2. Effect of course shutouts on transfer rates to other two and four-year colleges



Note: Figure shows the effect of course shutouts on transfer rates within five years of the waitlisted term.

The overall impacts on transfer rates mask substantial differences by student race/ethnicity. Figure 3 shows that underrepresented minority students were especially likely to transfer to other two-year colleges when shut out of a course.[7] By contrast, our analysis found that being shut out of a course significantly increased transfers to four-year institutions among Asian students. White students who were shut out of a course were no more or less likely to transfer to either two- or four-year colleges.

Figure 3. Effect of course shutouts on transfer rates to other two and four-year colleges, by student race/ethnicity



Note: These figures show the effect of course shutouts on transfer rates within five years of the waitlisted term.

Ultimately, we did not find downstream impacts on either associate or Bachelor's degree completion overall. This could be because the students who reduced their course load as a result of the waitlist were unlikely to complete degrees in the first place. Yet it might also be the case that a five-year follow-up window is too short to see impacts on these long-term outcomes. Consistent with our analysis of transfer behavior, however, we found some evidence that being shut out of a course increased Bachelor's degree completion among Asian students.

In the face of unequal access to educational resources, it is extremely important for policymakers and college administrators to anticipate how resource decisions influence student outcomes.

Considerations for Policymakers and Practitioners

Our analysis provides evidence of the impact of course shutouts on educational attainment. The study complements other research documenting the effects on students of funding reductions in higher education, and specifically community colleges, which disproportionately serve low-income students and students of color.

This study examines the effect of being shut out of a single course. Students may be shut out of multiple courses throughout their college careers, however, and the cumulative impacts of limited course availability on course-taking, transfers, and degree receipt may be larger. In the face of unequal access to educational resources, it is important for policymakers and college administrators to anticipate how resource decisions influence student outcomes.

Author Biographies and Acknowledgements

Silvia Robles and Max Gross are Researchers at Mathematica. Robert W. Fairlie is a Professor of Economics at the University of California, Santa Cruz.

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Endnotes

1 Bohn, Sarah, Belinda Reyes, and Hans Johnson. 2013. *The Impact of Budget Cuts on California's Community Colleges.* Tech. rep., Public Policy Institute of California.

2 For more details, see Robles, Silvia, Max Gross, and Robert W. Fairlie. 2019. *The Effect of Course Shutouts on Community College Students: Evidence from Waitlist Cutoffs.* National Bureau of Economic Research Working Paper No. 26376. nber.org/papers/w26376

3 Our analysis accounts for the fact that some students who are stuck on the waitlist at the end of the registration period may eventually enroll in the course when the term begins. Similarly, some students who were able to get off of the waitlist during the registration period may drop the course when the term begins.

4 According to the Integrated Postsecondary Education Data Center (IPEDS) unduplicated 12-month headcount and total FTE: 2017-2018.

5 We categorize students as degree seeking if they formally declare this intention upon enrolling. We also include students who declare their intention as undecided, which includes many students who eventually earn associate degrees or transfer to four-year institutions. Ultimately, though, our findings are very similar if we instead include all students and/or all waitlists in our analysis sample.

6 Nearby two-year colleges include West Valley College, Foothill College, San Jose City College, Mission College, Canada College, Evergreen Valley College, Ohlone College, and the College of San Mateo, and San Jose State University is a nearby four-year college. In other parts of the state or country where community colleges are more spread out, the impacts of course shutouts might be larger.

7 We include African-American, Latinx, Native American, other-race, and multi-racial students in the underrepresented minority category.