One Year Retention by California Region of Origin

UNIVERSITY OF CALIFORNIA MERCED

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This brief examines the relationship between students' California Region of Origin (i.e., being from Northern, Central, or Southern California) and one-year retention to inform whether a shift in student origin proportions may be contributing to lower retention rates. The analysis found that UC Merced students from different regions of the state were significantly different in terms of both demographics and academic preparation, and there was a significant relationship between region and one-year retention after controlling for academic preparation. We found that students from Northern California were more likely to be retained than students from Central or Southern California, but no significant differences were found for students from Central versus Southern California. In addition, Southern California students were not more likely to voluntarily leave UC Merced (e.g. with a last academic standing status of Good Standing) compared to non-retained students from different regions.

Background

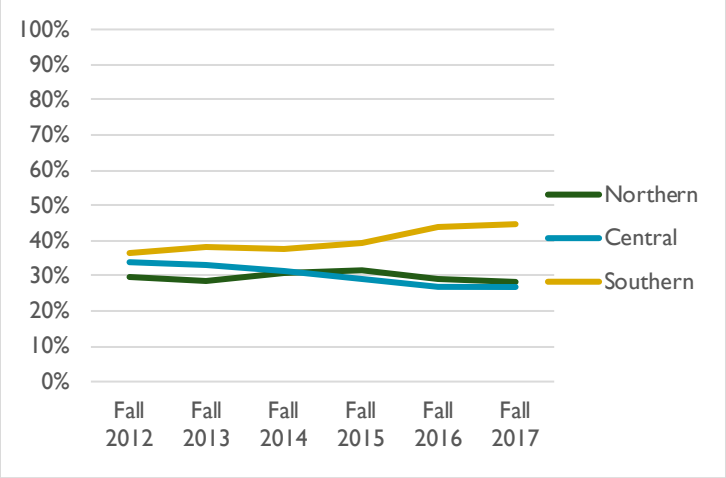
The Office of Undergraduate Admissions requested an analysis of retention by California region of origin to determine if a decline in first year retention could be linked with an increasing number of incoming students from Southern California. Students from Southern California have historically been less likely to be retained to the second year, and these students represent an increasing proportion of the incoming Frosh cohorts at UC Merced (Chart 1) This analysis was designed to investigate three main questions: 1) Are UC Merced students from different California regions demographically and academically similar? 2) Were students from different California regions similarly likely to be retained to the second year, when controlling for academic preparation? And 3) Of students who were not retained to the second year, did they leave with similar academic standing statuses?

How did we define different California regions? For the purposes of this analysis, Northern California was defined as all California counties north of and including the San Francisco Bay Area and Sacramento-Tahoe regions. Central California was defined as the North and South San Joaquin Valleys, Inyo-Mono, and the Central Coast. Southern California included all counties south of and including San Bernardino and Los Angeles.

Student Enrollment by Region

The proportion of incoming Frosh students coming from Southern California has significantly[1] increased (See Chart 1) from 37% in Fall 2012 to 45% in Fall 2017. Conversely, the proportion coming from Central California has significantly[1] decreased from 34% in Fall 2012 to 27% in Fall 2017; while Northern California students maintained a 30% proportion.

Chart 1: Southern California students are an increasing proportion of incoming cohorts.

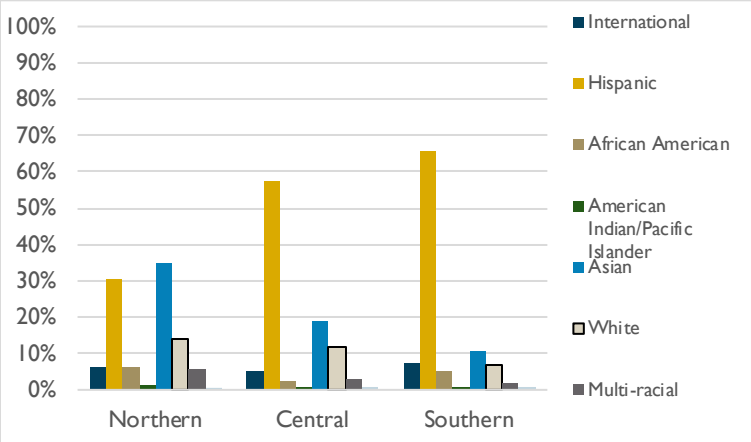


Student Demographics by Region

Are UC Merced students from different California regions demographically similar? As shown in Chart 2, the distribution of race/ethnicity significantly differed[1] by region of student origin. While overall, students were most likely to be Hispanic or Asian, the proportions across racial/ethnic categories were significantly different across

regions of origin. Southern California students were more likely to be Hispanic when compared with other regions. Northern California students had a higher proportion of Asian, White, and Multi-racial students compared with other regions.

Chart 2. Race/Ethnicity differs by region.

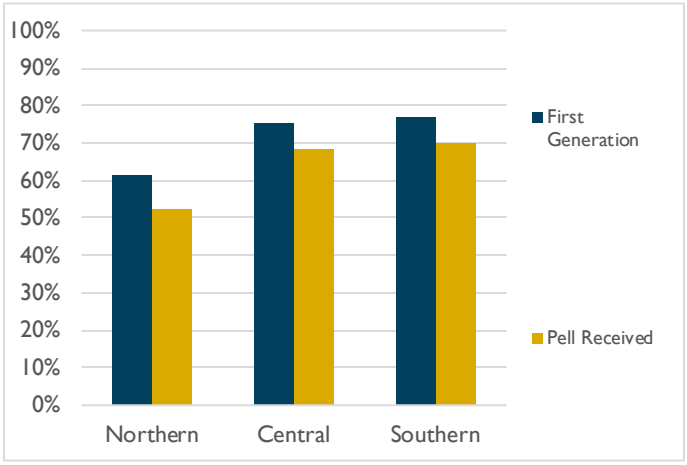


Though the majority of students in each region were first generation college students, the proportion of students reporting first generation status differed significantly[1] by region, as demonstrated in Chart 3. Students from Northern California were least likely to report first generation status, while Southern and Central California students were equally likely. The proportion of students receiving a Pell grant during the first year followed the same pattern, with Northern California students less often receiving Pell grants[1], and Southern and Central California students equally likely to receive Pell grants.

Academic Preparation

Are UC Merced students from different California regions academically similar? We examined academic preparation (as well as demographics) in order to determine if we could compare retention on region alone, or if there were other variables we might need to control for statistically in order to understand the relationship between student retention and region of origin.

Chart 3: First generation and Pell status by region.



Students from different regions of California not only differed in terms of demographics, but also differed in academic preparation. From Table 1, statistically significant differences[3] were found between regions for SAT scores, high school GPAs, total A-G courses taken in high school, and total honors courses taken in high school. Post-hoc pairwise comparisons[4] revealed significant differences between all three regions on SAT total, high school GPA, and total honors courses. Total A-G courses were significantly higher for Northern California students but were not significantly different for Central and Southern California students. Southern California students had the lowest average SAT scores and High School GPAs but more Honors courses.

Table 1. Average Academic Preparation by Region

	Northern	Central	Southern
SAT Total*	1120	1088	1069
High School GPA	3.50	3.63	3.46
Total A-G Courses	44.5	43.7	43.5
Total Honors Courses	4.7	5.3	6.1

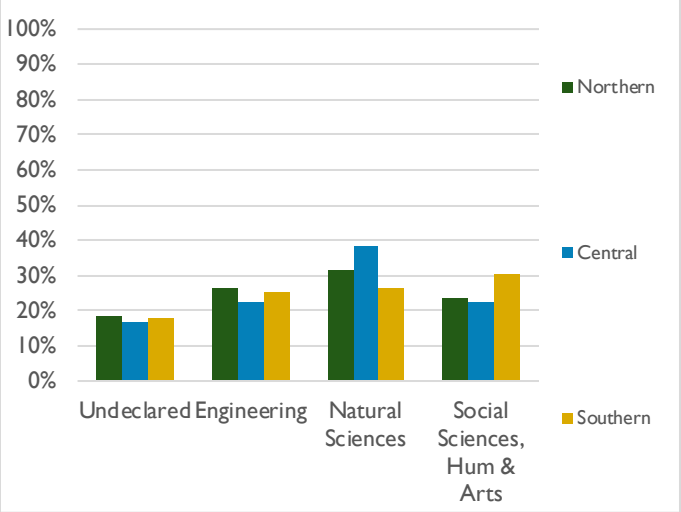
** Old SATR scores are converted to the new SAT6 scale.*

One Year Retention by California Region of Origin

School of First Major by Home Region

Students from different regions tended to declare first majors in different schools[1] (see Chart 4). Students from each region were equally likely to select Undeclared. Students from Central California were most likely to start in a Natural Sciences major, while Southern California students had the highest proportion starting in SSHA majors. Northern and Southern California students were significantly more likely than students from Central California to declare majors in Engineering.

Chart 4: School of First Major significantly differs by Home Region.

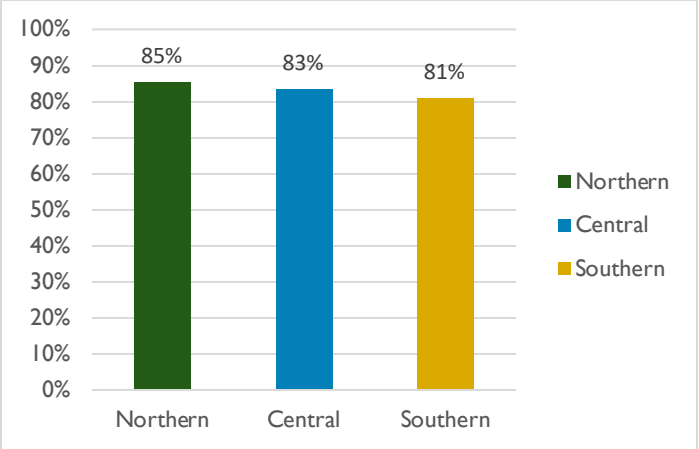


First Year Retention by Home Region

Overall, for the Fall 2012 through Fall 2017 cohorts, one-year retention rates were lower for students from Southern California (see Chart 5), and similar for Northern and Central California[1]. We investigated retention by cohort, however, this did not significantly vary by region, and there was not a consistent trend over time.

Were students from different California regions similarly likely to be retained to the second year, when controlling for academic preparation? A logistic regression analysis was performed to evaluate whether California region had a significant relationship with retention after controlling for academic preparation. As the analysis was requested by the Office of Admissions, we only used information that would be known at the time of a student's application to UC Merced. The main comparison of interest was between Southern and Central California, as the Central California students have been the population displaced by the growth in Southern California enrollments.

Chart 5: First year retention by Region.

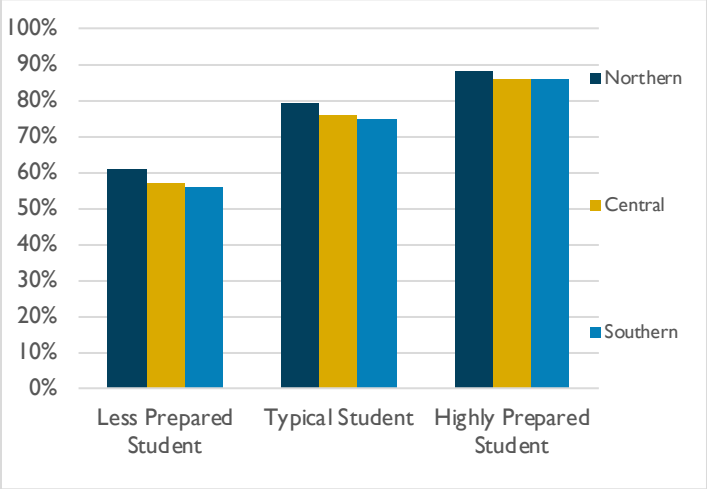


The logistic regression model combined the Fall 2012 through Fall 2017 cohorts. The analysis included SAT scores, high school GPA, and total A-G courses, in order to control for academic preparation, because differences in retention rates between regions (as seen in Chart 5) are significantly associated with differences along these variables. We did not include variables that were not significant predictors of retention and that did not improve the model.

The analysis investigated whether the Southern California region significantly differed from Northern and Central California. Note that the analysis compared Southern California to Northern and Central California, not each region to all other regions. The effect of California region was significantly predictive[5] of retention after controlling for academic preparation factors. Specifically, being from Northern California was associated with 22% higher odds of retention compared to being from Southern California; in

other words, for every 100 Southern California students retained, there were 122 Northern California students retained. There was no significant difference between Southern and Central California.

Chart 6: Predicted Probabilities of Retention by Academic Preparation and Region

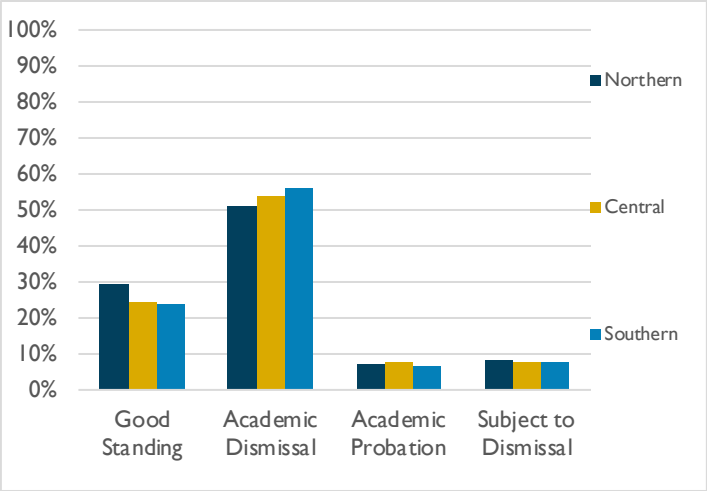


What are the predicted probabilities of retention for typical students? If we calculate the predicted probability of retention for a student with the average SAT score of 1089, the average high school GPA of 3.53, and the average a-g courses (43), for students from different California regions, we can see the impact that region of origin has on retention for a typical student (see Chart 6). If this student is from Southern California, their predicted probability of retention to year two is 75%, while a Central California student has a 76% predicted probability of retention, and a Northern California student has a 79% probability of retention.

What are the predicted probabilities of retention for less prepared students? We can also examine a less academically prepared student at the 5th percentile of SAT scores (890) and high school GPA (3.05) who has 38 or less a-g courses. For this student, the predicted probability of retention if they are from Southern California is 56%, while a Central California student has a 57% probability, and a Northern California student has a 61% probability of retention.

What are the predicted probabilities of retention for highly prepared students? If we examine the most academically prepared students at the 95th percentile of SAT scores (1330), high school GPA (4.07) and who has 48 or more a-g courses, the predicted probability of retention of a Southern California student is 86%, while a Central California student has an 86% probability and the Northern California student an 88% probability of retention.

Chart 7: Final Term Academic Standing did not differ by Region.



Academic Standing in Final Term for Non-Retained Students

Of students who were not retained to the second year, did they leave with similar academic standing statuses? In order to investigate potential differences in reasons why students were not retained, we looked at the last academic standing of the non-retained students by region of origin. For non-retained students, the proportion of each academic standing in the last completed term did not significantly[1] differ by region of origin (see Chart 7). Students from different regions are academically dismissed at similar rates. Students leaving voluntarily (e.g. with their last academic standing being

"good standing") also did not significantly differ across California regions, so the data do not support the idea of Southern California students *choosing* to leave because they are farther from home.

Conclusion

A larger proportion of Southern California students compared with their peers from other California regions were not retained, as shown in Chart 5. In order to understand the relationship between region of origin and retention, we answered the three following questions:

1) ***Are UC Merced students from different California regions demographically and academically similar?*** We found significant differences in demographics and academic preparation among students from different California regions.

2) ***Were students from different California regions similarly likely to be retained to the second year, when controlling for academic preparation?*** After controlling for academic preparation, we found that Northern California students had higher odds of retention than Southern California students, but no significant difference was found between Southern and Central California students.

3) ***Of students who were not retained to the second year, did they leave with similar academic standing statuses?*** The distribution of academic standing statuses in students' final terms was not significantly different for students from different regions.

Overall, findings do not support the hypothesis that Southern California students are lowering retention rates. The increased proportion of students from Southern California has only affected the proportion of students from Central California, so in order to impact retention we would need to see a significant difference in retention between Southern and Central California regions after controlling for academic preparation, which was not found.

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ENDNOTES

1. Based on Chi-Square analysis, Pairwise Comparisons of Column Proportions with Bonferroni Correction, $p<.05$.
2. Based on Chi-Square analysis, $p<.05$.
3. Based on Analysis of Variance, $p<.05$.
4. Post-hoc pairwise comparisons with Bonferroni Correction, $p<.05$.
5. Based on a Logistic Regression analysis, $p<.05$.
6. Variables removed for non-significance included: receiving Pell in the first year, first generation status, gender, and total honors courses.