Factors associated with SIR in Fall 2020

UNIVERSITY OF CALIFORNIA MERCED

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This brief examines the relationship between applicant characteristics and submission of intent to register. SIR yields decreased in recent years, particularly in the Fall 2020 enrollment cycle. We examined the relationship between SIR and applicants' demographic and academic characteristics, as well as admission to sister UC campuses. Several were associated with SIR submission, with admission to other UC campuses and geographic region most associated with SIR submission. We used Fall 2020 data to build logistic regression predictive models to create an estimated SIR rate in the 2021 admissions cycle.

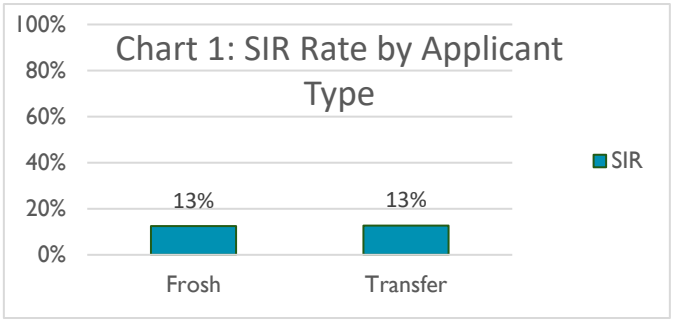
Background

The Office of Undergraduate Admissions requested an analysis of SIR submissions in the Fall 2021 admissions cycle. In this analysis we focused on admitted applicants in the prior admissions cycle (Fall 2020). Note that in this report, the outcome of interest was whether a student submitted their Statement of Intent to Register (SIR) at any time.

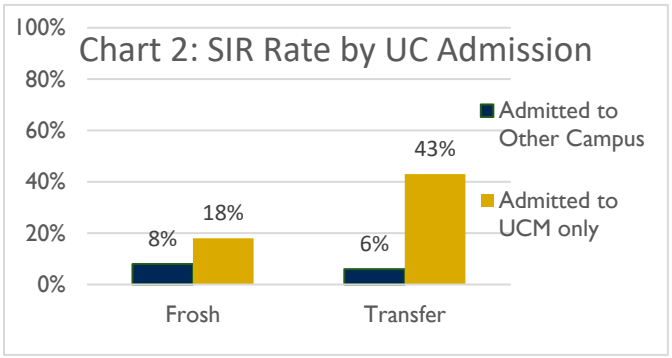
This analysis was designed to investigate two main questions 1) How did applicants who submitted SIRs differ from those who did not? 2) How many SIRs would be predicted if patterns from Fall 2020 hold?

Applicant Characteristics and SIR Rates

Entering Level We examined the relationships between entering level and SIR for our variables of interest to determine if a singular model would be sufficient, or if two models were needed to separately predict likelihood of SIR for frosh and transfer applicants. First, we found that in 2020, the SIR rate was not significantly[1] different by applicant type- see chart 1:



UC Admission As shown in Chart 2, the SIR rate was significantly[1] lower for students admitted to other UC campuses (8% vs 19%), with a larger difference in the Transfer applicants (6% vs 43%) than Frosh applicants (8% vs 18%).



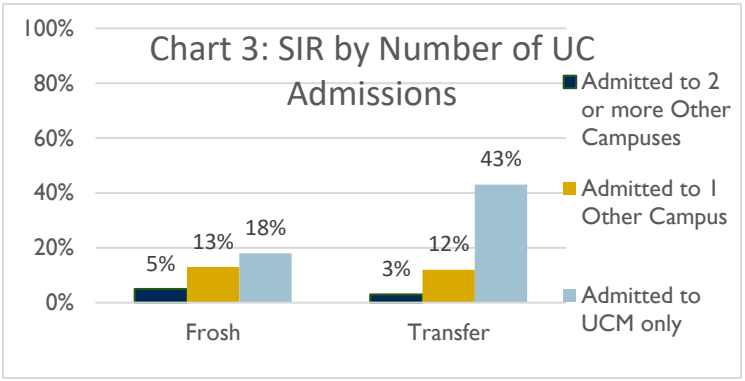


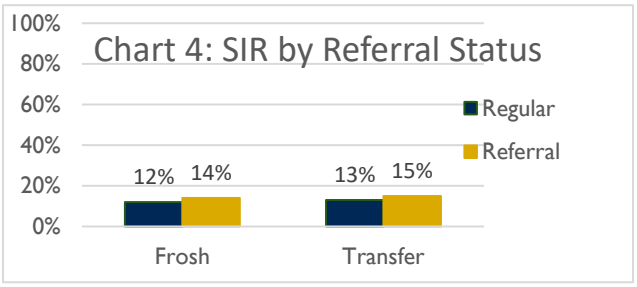
Chart 3 shows that SIR rate was also significantly[1] associated with the number of campuses admitted to; those admitted to 2 or more campuses were less likely to SIR (4.3% overall) than those admitted to only one other campus (12% overall). We can also see that this relationship was more pronounced for Transfer students, who had larger differences in SIR rates by number of UC Admissions compared to Frosh students.

Table 1. Admits to UC Campuses **Fall 2020**

UCSC	7520
UCR	8513
UCD	4353
UCSB	2761
UCSD	2401
UCI	2320
UCB	985
UCLA	655
Any Other Campus	**13992**

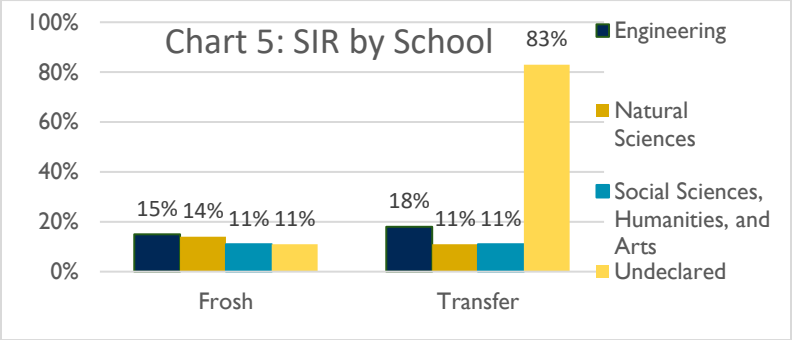
For context on how many admitted students were admitted to other UC campuses, see Table 1. The total number of distinct students admitted to one or more campus (13992) represented 58% of admitted students in Fall 2020. Of these, 6029 (25%) were admitted to one campus, and 7963 (33%) were admitted to two or more campuses.

Referral Status Chart 4 shows that SIR rate was not significantly[1] associated with Referral status.



Academic Characteristics

School of UC Merced major applied to was significantly[1] associated with SIR rate, with applicants to the School of Engineering most likely to submit an SIR (16% overall), followed by applicants to the School of Natural Sciences (14% overall), and applicants to the School of Social Sciences, Humanities, and Arts (11% overall). Undeclared applicants were significantly less likely to submit an SIR (12% overall) than applicants to the School of Engineering. Note that while Undeclared Transfer students had a high SIR rate (83%), there were only 6 Undeclared Transfer admits total.

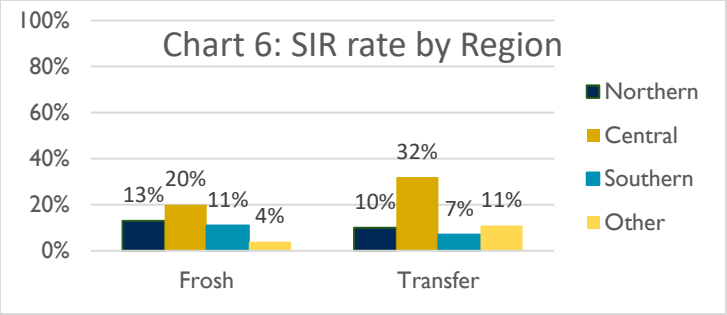


Applicant GPA We found that for Frosh applicants, High School GPA was significantly[2] different between applicants that submitted an SIR (mean = 3.56) and those who did not (mean = 3.70). For Transfer applicants, GPA was also significantly[2] different for applicants who submitted SIRs (mean = 3.18) and those who did not (mean = 3.34).

Demographics

Geographic Region In 2020, applicants from the Central Valley were significantly[1] more likely to SIR overall (21%) than students from other regions, followed by Northern California (12%), Southern California (11%) and Other regions (4%). The pattern was

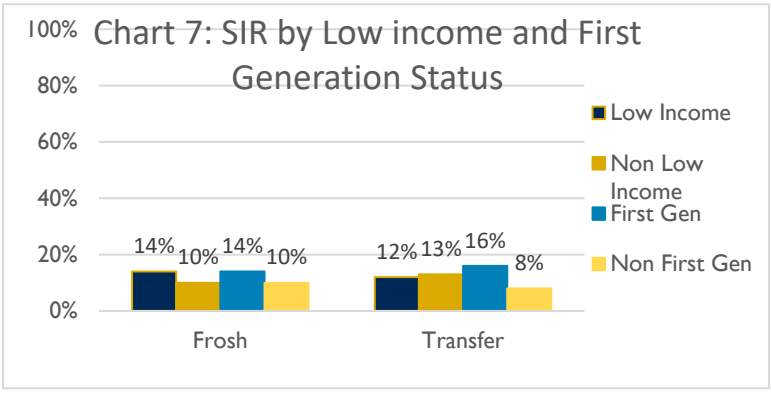
slightly different for Transfer students, for whom applicants from Other regions were not significantly less likely to SIR than those from Northern and Southern California - see Chart 6, below.

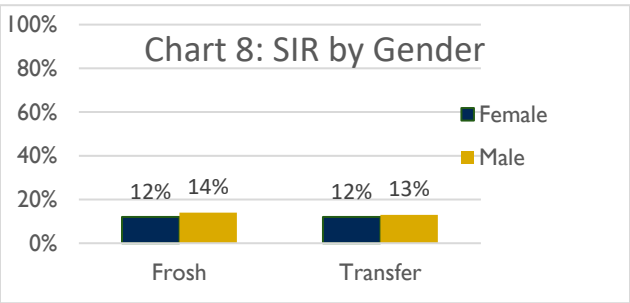


Low-income students were significantly[1] more likely to SIR, though the difference was only statistically significant for Frosh applicants (14% vs 10%), while Transfer students were equally likely to SIR (13% vs 12%).

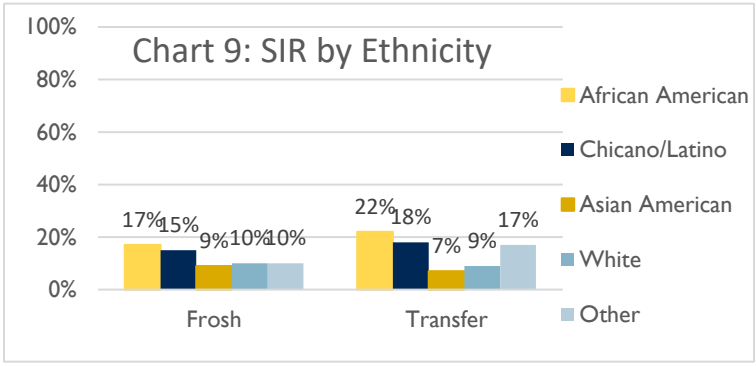
First generation students were also significantly[1] more likely to SIR, at 15% overall versus 9% overall for non-First-generation students. See Chart 7, below for low income and first-generation SIR rates.

Gender There was a significant[1] association between gender and submitting an SIR, with women 12% likely overall to SIR, versus 14% for men and unknown. This relationship was significant only for Frosh applicants, see Chart 8, below:





Ethnicity was significantly[1] associated with SIR submission as shown in Chart 9, to the right. Chicano/Latino and African American applicants were more likely to SIR (at 17% and 15% overall), than Asian American (8%), White (10%), and Others (11%). This differed slightly for Transfers, for whom the Other group was more likely to SIR (17%) than Asian Americans (7%).



Predicting SIR

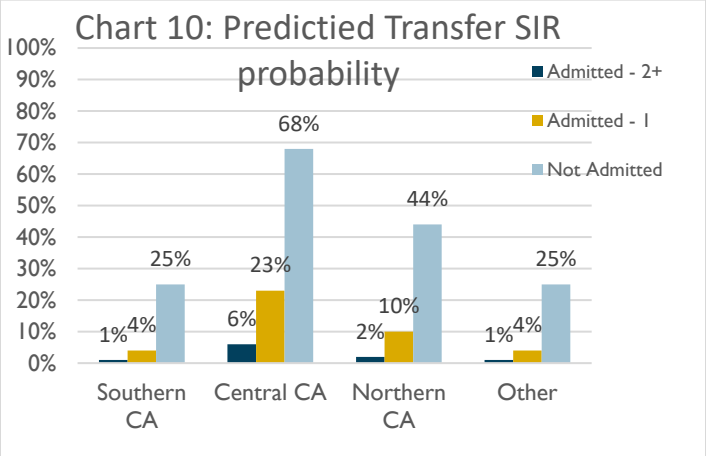
We built separate models for Frosh and Transfer applicants because the patterns of association between SIR and applicant characteristics were not consistent between Frosh and Transfer applicants. The logistic regression models were built using data from the Fall 2020 cohort. We evaluated the following variables for inclusion in the models: admission to other UC campuses, referral status, school of UC Merced major, GPA, geographic region, low-income status, first generation status, gender, and ethnicity.

The analysis was intended to inform estimates of total SIR volume in the Fall 2021 admissions cycle, as well as show which of the factors previously identified remained significant predictors when taking the entire set into account. We did not include variables that were not significant predictors of retention and that did not improve the model.

Transfer Applicants The Transfer model included Admission to another UC campus and California region.

Admission to fewer UC campuses was associated with higher odds of SIR, with those accepted to only one campus (4.77 times higher) and those accepted to no other campuses (34.53 times higher). When compared to being from Southern California, Central California was associated with higher odds of SIR (6.34 times higher) as was being from Northern California (2.37 times higher), and Other regions (1.001 times higher).

To contextualize this, we calculated predicted probabilities of SIR for students with a few common sets of characteristics in Chart 10, below:



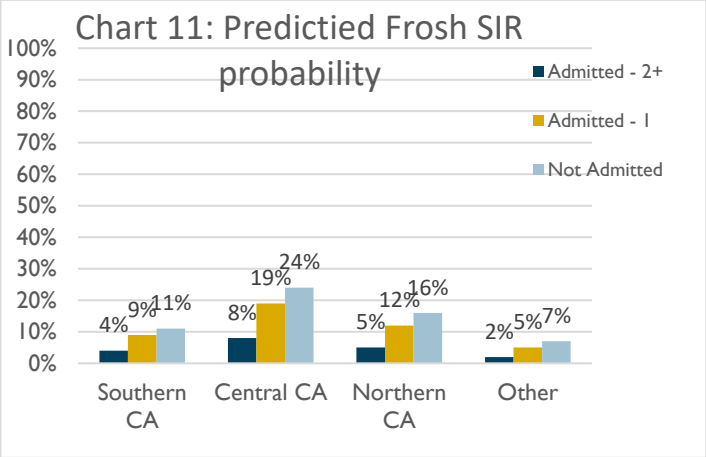
Frosh Students The Frosh student model included Admission to another UC campus, High School GPA, California Region, school of UC Merced major, gender, and ethnicity. We collapsed the detailed ethnicity information into a binary URM variable, with White, Missing, and Asian American in the non-URM category, and the African American, Chicano/Latino, Native American, and Pacific Islander groups in the URM category.

Admission to fewer UC Campuses was associated with higher odds of SIR, when compared to students admitted to 2 or more campuses. Admission to no other UC campuses had 3.34 times higher odds of SIR, while those with admission to one other campus had 2.46 times higher odds. When compared to being from other regions, Central California applicants had higher odds of SIR (4.19 times higher), as did northern California (2.54), and southern California (1.76 times higher).

URM applicants had 1.46 times higher odds of submitting an SIR compared to non-URM applicants, and women had 1.18 times higher odds of submitting an SIR compared to Men and Unknown applicants.

Applicants to the Schools of Engineering or Natural Sciences had higher odds of submitting an SIR compared to Undeclared applicants (1.55 and 1.45 times higher, respectively), while applicants to the School of Social Sciences, Humanities, and Arts had .84 times the odds of Undeclared applicants. Each GPA point was associated with .64 times lower odds.

To contextualize this, we calculated predicted probabilities of SIR for students with a few sets of characteristics. Chart 11, below, shows SIR probabilities of Frosh applicants to the School of Social Sciences, Humanities, and Arts who identify as URM and female, with the average admitted GPA (3.68). Values are shown by Admission to another UC campus, and California region.



What type of student has the highest probability of SIR?

The characteristics of a student with the highest predicted probability of SIR would be an applicant not admitted to any other UCs, who is from Central California, identifies as both Female and URM, is applying to the School of Engineering, and has a lower GPA (3.0); this applicant has a 50% predicted probability of SIR.

A student with these same characteristics, but instead:

-is accepted to two campuses, is 23% likely to SIR

-is accepted to one other campus, is 42% likely to SIR

-is from Southern California, is 30% likely to SIR

-is non-URM, is 41% likely to SIR

-does not identify as Female, is 46% likely to SIR

-is an applicant to the School of Social Sciences, Humanities, and Arts, is 35% likely to SIR.

-has a 4.0 GPA, is 30% likely to SIR.

What are the predicted probabilities of SIR for UC Merced applicants with the most common characteristics? The most common characteristics for SIRs in 2020 were URM, female applicants to the School of Social Sciences, Humanities, and Arts from Southern California, with a 3.56 GPA (the average GPA of SIRs), who was not accepted to other UC campuses. A student with all of these characteristics is 13% likely to SIR.

A student with those same characteristics, but instead:

- Is from Central California, is 25% likely to SIR.
- Is not female, has an 11% probability of SIR.
- Is non-URM, has a 9% probability of SIR.
- Is accepted to two additional UC campuses, has a 4% probability of SIR
- Has a 4.0 GPA, has a 9% probability of SIR
- Is an applicant to the School of Engineering, has a 21% probability of SIR

Next Steps

Predicted probabilities for the Fall 2021 SIRs will be calculated based on the coefficients from the logistic regression, and the average predicted probability will be used to provide an estimate of this year's SIR yield, if the current cycle is reflective of the Fall 2020 cycle.

ENDNOTES

1. Based on Chi-Square analysis, Pairwise Comparisons of Column Proportions with Bonferroni Correction, p<.05.
2. Based on Analysis of Variance, p<.05.
3. Based on a Logistic Regression analysis, p<.05.