

Factors associated with Applicant Melt in the 2018-2020 Fall Admissions Cycles

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This brief examines the relationship between applicant characteristics and enrollment melt after submission of intent to register. Melt increased (and conversely, enrollment decreased) in recent years, particularly in the Fall 2020 enrollment cycle. We examined the relationship between melt behavior and applicants' demographic and academic characteristics, as well as admission to sister UC campuses. Several were associated with melt, and in many cases these associations became larger in Fall 2020. We used Fall 2020 data to build logistic regression predictive models to identify students most likely to melt in the 2021 admissions cycle.

Background

The Office of Undergraduate Admissions requested an analysis of melt to determine a pool of high melt risk applicants to target for coaching in the Fall 2021 admissions cycle. In this analysis we focused on regular, incoming first year applicants who had submitted a Statement of Intent to Register (SIR) in the prior three admissions cycles.

This analysis was designed to investigate two main questions

- 1) How do melted applicants differ from enrolled applicants?
- 2) Which applicants are most likely to melt in Fall 2021, and should be targeted for an enrollment coaching intervention?

Applicant Characteristics and Melt

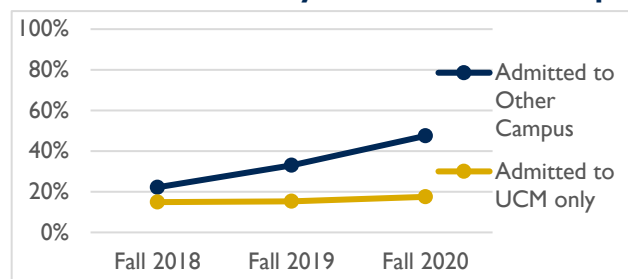
Admission to Sister UC Campuses has increased rapidly in the past three years, contributing to enrollment challenges at UC Merced, as seen in Table 1, below:

Table 1. Admits to Sister UC Campuses, Fall 2018-20

	2018	2019	2020
UCSC	134	255	515
UCR	300	345	512
UCD	106	175	212
UCSB	83	73	114
UCSD	29	72	60
UCI	61	37	54
UCB	14	12	31
UCLA	8	8	12
Any Other Campus	563	754	1096

Admission to another UC Campus was significantly associated with melt¹, with students being more than twice as likely to Melt if they were admitted to another UC (37% melt rate overall), versus those who were not (16% melt rate overall). Additionally, this rate has increased over the past three years:

Chart 1: Melt Rate by Admit to UC Campuses



With the share of UC Merced SIRs having been admitted to sister campuses increasing, as well as the melt rate associated with admission to sister campuses increasing, this is likely to increase in impact on UC Merced Fall enrollments but note that we found the *number* of campuses admitted to was not significantly associated with melt rates¹.

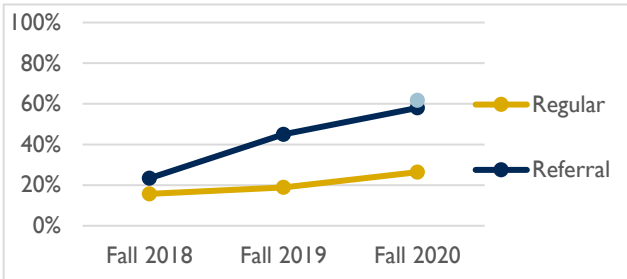
Applicant Type Entering level (Frosh or Transfer) was not significantly associated with overall Melt over the past three years, though there was a significant association in Fall 2020, with Frosh more likely to melt (29%) compared to Transfers (23%). Prior years had a slightly higher (though not significantly so) melt rate for Transfers.

Referral Status Regular applicants were significantly¹ less likely to melt (20%) overall than Referral students (40%). We

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combined the Referral (38% overall melt rate) and Early Referral pool (62% melt rate) applicants together for statistical testing, as there was no Early Referral pool in 2018 or 2019. Note that the difference in melt rate has increased over the past three years as seen in Chart 2:

Chart 2: Melt Rate by Referral Status

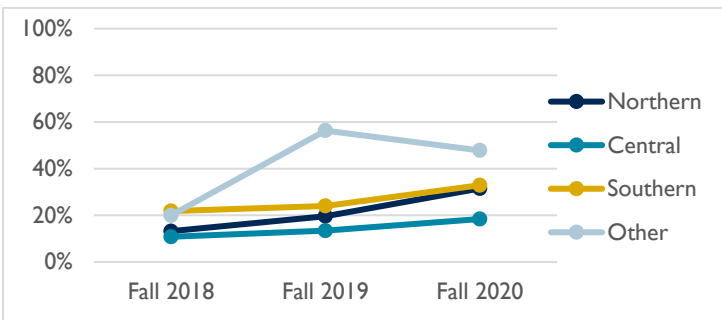


*note that there was no early referral pool in 2018 or 2019.

Academic Characteristics Frosh students who melted did not significantly² differ in terms of their high school GPA, and Transfer students who melted did not significantly² differ in terms of their transfer GPA. Additionally, School of UC Merced major applied to was not significantly¹ associated with melt.

Geographic Region From Chart 3, students from the Central Valley were significantly¹ less likely to melt overall than students from other regions, with the difference in melt rates increasing over time.

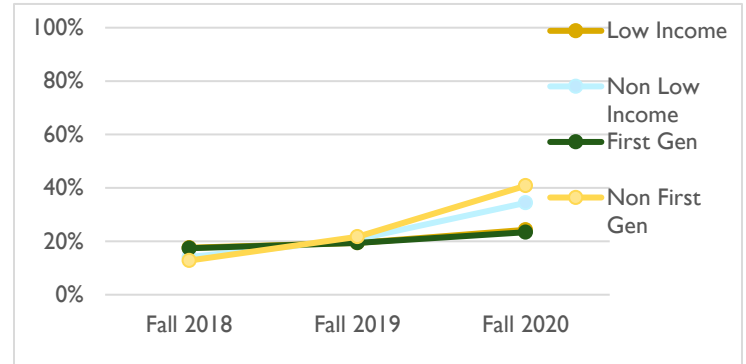
Chart 3: Melt Rate by Region



First Generation students were significantly¹ less likely to melt (20%) overall compared to Non-First-Generation students (26%), and the difference in melt rates increased through 2020; see Chart 4.

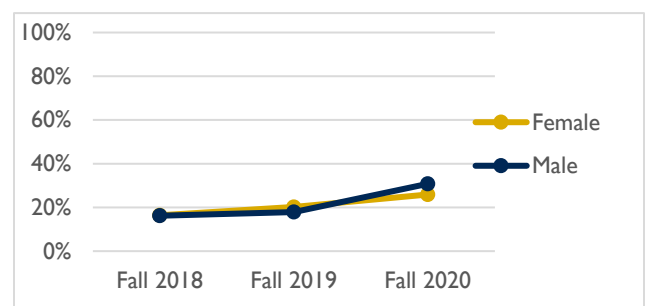
Low-income students were also significantly¹ less likely to melt (20%) overall compared to non-low-income students (24%), with the same pattern of an increased difference in melt rates over time – note that low income and first-generation status are highly correlated with each other, with 74% of first-generation students also being low income, and 75% of non-first-generation students *not* being low income. See Chart 3; non low income and non-First Generation melt rates are nearly identical:

Chart 4: Melt Rate by Income and First-Generation Status



Gender There was no significant difference between the overall melt rates of Men (22%) and Women (21%).

Chart 5: Melt Rate by Gender

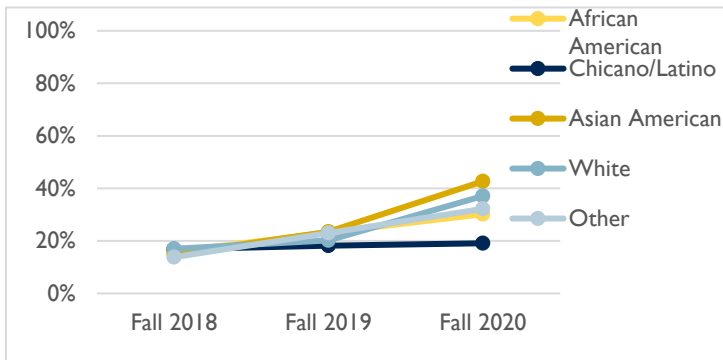


Ethnicity was significantly¹ associated with overall melt as well, with Chicano/Latino students less likely to melt overall (19%) than Asian American students (27%). Note that we combined small groups together (Native American, Pacific Islander, and Unknown) for analysis. In specific terms, rates

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were not significantly different in 2018, but by 2019, Chicano/Latino and students had significantly¹ lower melt rates than Asian American students; see Chart 6.

Chart 6: Melt Rate by Ethnicity



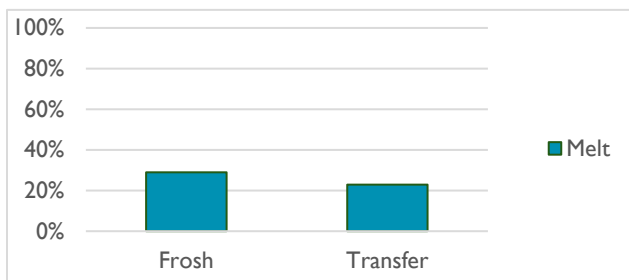
*Other groups were combined due to small cell sizes.

Fall 2020 Melt Rates by Entering Level

We examined the relationships between entering level and melt 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 melt for frosh and transfer applicants.

First, we found that in 2020, the melt rate was significantly¹ different by applicant type, with frosh more likely to melt (29%) than transfer applicants (23%) - see chart 7:

Chart 7. Melt Rate by Applicant Type



As shown in Chart 8, melt was significantly¹ higher for students admitted to other UC campuses (48% vs 18%), with a larger difference in the Frosh applicants (49% vs 18%) than Transfer applicants (18% vs 32%).

Chart 8. Melt Rate by Admit to UC Campuses

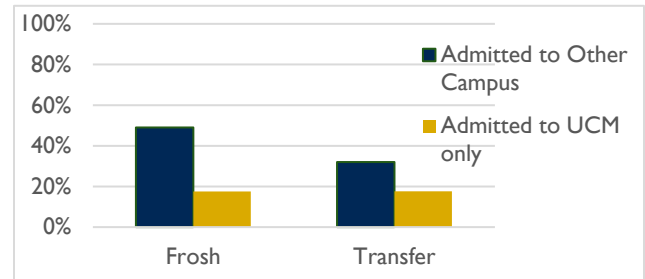


Chart 9. Melt Rate by Referral Status

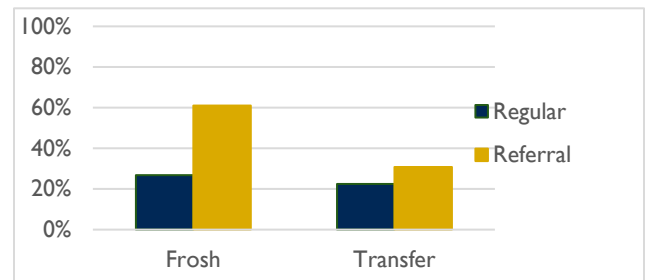


Chart 9 shows that melt was significantly¹ associated with Referral status, with referral applicants more likely to melt (59% vs 26% overall), though the relationship was significant only for Frosh applicants (61% vs 27%).

Academic Characteristics

As before, School of UC Merced major applied to was not significantly¹ associated with melt. shows that melt.

We found that for Frosh applicants, High School GPA was significantly² different between students that melted (mean = 3.58) and students who enrolled (mean = 3.54). For Transfer applicants, GPA was not significantly² different for students that melted and students who enrolled (3.16 vs 3.19).

Applicant Geographic Region

In 2020, students from the Central Valley were significantly¹ less likely to melt overall than students from other regions, though the pattern of the relationship between region and melt was slightly different for Frosh and Transfer applicants-see Chart 10, below. For Frosh, applicants from central California were less likely to melt (19%) than students from

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all other regions (which range from 32% to 44%). Transfer students from central California were less likely to melt (16%) than students from southern California (35%).

Chart 10. Melt Rate by Region

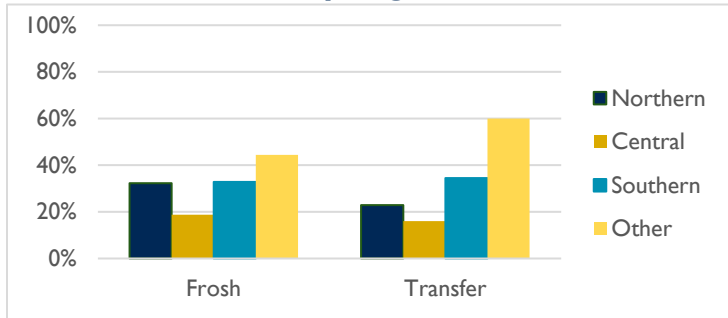
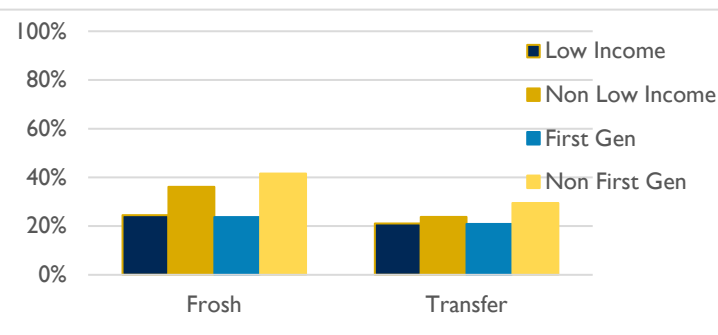
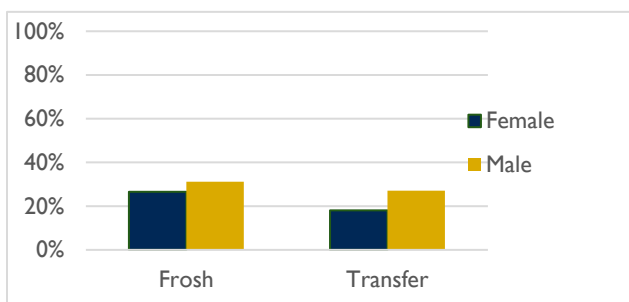


Chart 11: Melt Rate by Income and First-Generation Status



Low-income students were significantly¹ less likely to melt, though only for Frosh applicants (25% vs 36%). Similarly, first generation students were also significantly¹ less likely to melt, though only for Frosh applicants (24% vs 42%).

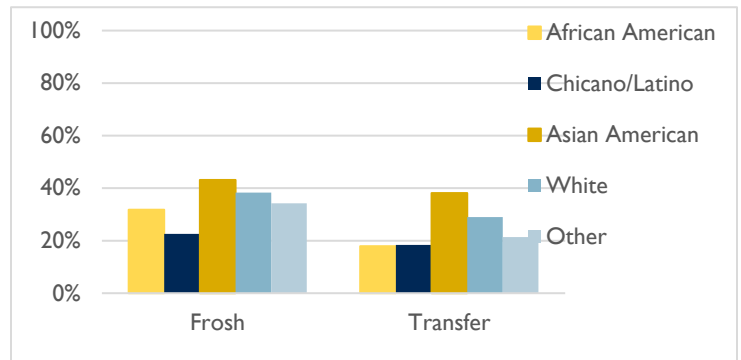
Chart 12: Melt Rate by Gender



There was a significant¹ association between gender and melt, though only for Frosh applicants – note that while the

difference appears larger for Transfer students, it did not reach statistical significance due to small cell sizes.

Chart 13: Melt Rate by Ethnicity



Ethnicity was significantly¹ associated with melt for Frosh applicants, but was not significant for Transfer applicants, as shown in Chart 13, above. For Frosh, Chicano/Latino students were less likely to melt (23%) than African American students (32%), who were less likely to melt than Asian American students (43%). White students were more likely to melt (38%) than Chicano/Latino students (23%).

Predicting Melt

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

The analysis was intended to identify a population of students most likely to melt 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 Students The Transfer student model included Admission to another UC campus, California region, and URM status. We collapsed the detailed ethnicity information into a

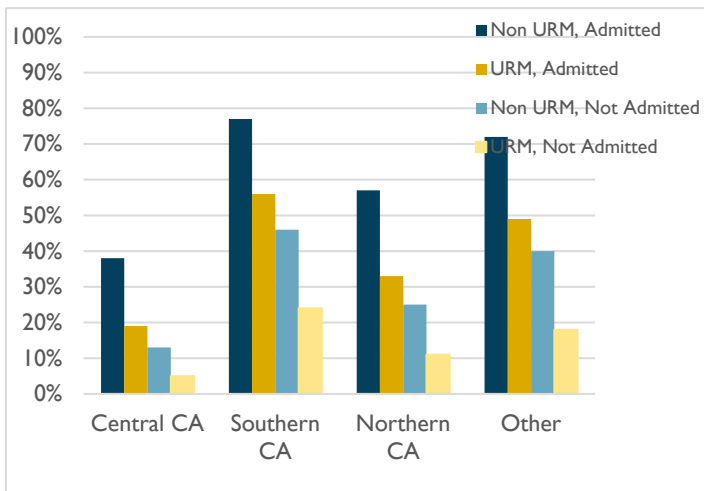
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binary URM variable, with White, Missing, and Asian American in the non-URM category, and the African American, Chicano/Latino, Native American combined into the URM category (*note: there were no Pacific Islander Transfer students in the 2020 data*).

Admission to another UC Campus was associated with higher odds of melt (3.99 times higher), as was non-URM status (2.73 times higher). When compared to being from central California, northern California was associated with higher odds of melt (2.19 times higher) as was being from southern California (5.50 times higher), and Other regions (4.31 times higher).

To contextualize this, we calculated predicted probabilities of melt for students with a few common sets of characteristics in Chart 14, below:

Chart 14: Predicted Probabilities of Melt by Region, UC Admission and URM Status – Transfer Students

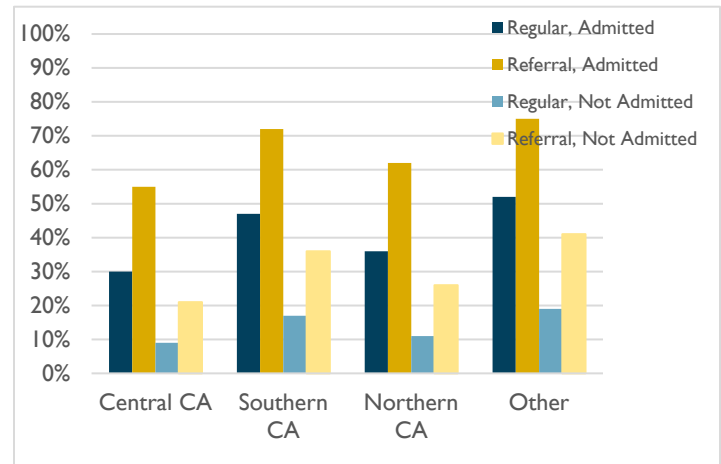


Frosh Students The Frosh student model included Admission to another UC campus, referral status, High School GPA, California Region, first generation status, and ethnicity. Admission to another UC Campus was associated with higher odds of melt (4.5 times higher), as was referral status (2.9 times higher), and non-first-generation status (1.7 times higher). When compared to being from central California,

northern California was associated with higher-odds of melt (1.3 times higher), as was southern California (2.1 times higher), and Other (2.5 times higher). When compared to students who identify as Chicano/Latino, identifying as African American was associated with higher odds of melt (1.1 times higher), as was identifying as Asian American (1.8 times higher), identifying as White (1.4 times higher), or Other (1.3 times higher).

To contextualize this, we calculated predicted probabilities of melt for students with a few common sets of characteristics. Chart 15, below, shows melt probabilities of Frosh students who identify as first-generation, Chicano/Latino and have the average GPA of 3.56. Values are shown by Referral status, Admission to another UC campus, and California region.

Chart 15: Predicted Probabilities of Melt: first-generation, Chicano/Latino Frosh students with average GPA



What are the predicted probabilities of melt for UC Merced applicants with the most common characteristics? The most common characteristics for SIRs in 2020 were Chicano/Latino ethnicity, regular applications, first generation, Southern California origin, 3.56 mean GPA, and not accepted to other UC campuses. A student with all of these characteristics is 17% likely to melt.

- A student with those same characteristics, but is instead from central California, is 9% likely to melt.

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- A student with the same initial characteristics but is not first generation has a 25% probability of melt.
- A student with the same initial characteristics but is Asian American has a 26% probability of melt.
- A student with the same initial characteristics but a 4.0 GPA has a 13% probability of melt.

Next Steps

Predicted probabilities for the Fall 2021 SIRs will be calculated based on the coefficients from the logistic regression models and provided to enrollment management for selection in an anti-melt intervention. We plan to estimate the effects of the intervention by comparing the melt rates of students just above and just below the selection cutoff if a cutoff is used for selection in enrollment coaching.

Evaluation of anti-melt efforts will compare students with anti-melt outreach to students with similar predicted probabilities and/or characteristics to see if melt rates are reduced with enrollment coaching.

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, $p < .05$.

Fall 2021 Update: A follow up analysis was performed on data from the Fall 2021 anti-melt enrollment coaching campaign; specifically, whether a phone conversation took place with the prospective student or not.

- Students with the highest probability of melt were assigned to the enrollment coaching intervention.
 - Data from the Fall 2020 anti-melt campaign show that staff attempted to contact 657 included in the analysis, of which 264 had a phone conversation.
 - Students who had a completed phone conversation had similar enrollment rates as students who were not assigned to the intervention.
 - Students who had a phone conversation had higher enrollment than those who did not have a phone conversation (73% versus 67%).
-