2021 UCLA Commencement Survey

Group 5

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1 Abstract

The COVID-19 pandemic has forced many campuses across the US to go virtual. UCLA is one of the many universities that has opted to be primarily online. As a result, students are attending classes at home, many even attending abroad. With the ongoing pandemic giving rise to health concerns and students possessing differing travel and financial circumstances, the topic of holding an in-person commencement ceremony has been a pressing and controversial issue. The goal of our analysis is to explore the appropriate variables that would best predict student's perception of exclusion should UCLA decide to hold an in-person ceremony.

2 Data Set

2.1 Description of Data Set

The data set used for this analysis is from the UCLA 2021 Senior Commencement survey. Graduating seniors at UCLA were surveyed on their graduation ceremony preferences and concerns in early 2021 amidst the ongoing Covid-19 pandemic.

2.2 Description of Variables

Variables in the Data Set		
Exclusion Variables	**Time Variables**	
MeCovid	avail_June	notavail_June
ClassCovid	avail_JulySept2021	notavail_JulySept2021
MeTravel	avail_OctDec2021	notavail_OctDec2021
ClassTravel	avail_JanMarch2022	notavail_JanMarch2022
MeFinances	avail_JulySept2022	notavail_JulySept2022
ClassFinances	avail_AfterSept2022	notavail_AfterSept2022

Descriptive Variables	**Activity Preference Variables**
college_division	opt_small_dept
interest_in_student_affinity_group_ceremonies	opt_drive_thru
frosh_fr_transfer_as	opt_cross_alone
non_resident_tuition_payer	opt_big_no_names
race_ethnic	opt_virt_wait
sex	offered_ideas

There are 30 variables in the data set. The variables we used specifically in our analysis can be split into three major groups. The first group are the exclusion variables. These are variables are ordinal variables. Students were asked to respond whether the believed that it was "not at all likely to happen", "somewhat likely to happen" "likely to happen" or "extremely likely to happen" in response to statements relating to perceptions of exclusion from commencement activities for themselves and their peers. The second group of variables are the time variables. These are binary variables which corresponded with whether a student would definitely be able to make commencement activities for six periods of time in the future. The second six indicate whether the student would definitely NOT be able to make commencement activities for the same six periods of time. The last group of variables were the variables that were descriptive of the students. These included their college division, race, sex, etc. The remaining six variables indicated how preferable a student finds each of the proposed commencement activities in June and additional ideas. As these variables do not relate to the questions we are trying to answer, we did not use them in our analysis.

2.3 Data Cleaning

There was not too much prep work to do as the data was already pretty clean. The race_ethnic variable, is originally coded into the data set as numbers. Using the given key, we re-coded the variable so that the value reflected that actual label. The exclusion variables are ordinal, but the levels in the raw data set were not in the correct order, so we cleaned up these variables by ordering the levels in the correct order from "Not at all likely to happen" to "Extremely likely to happen".

We also turn all the empty string values into NA values, so we can get a more accurate look of the data. As for scaling, we have not done anything to scale our data since all variables from the given data are discrete variables.

3 Statement of the Question

The research questions this study attempts to address are:

1. How can the multiple exclusion perception questions be considered to indicate likelihood of being excluded?
2. How do perceptions of students being excluded relate to when students indicate they may be available for future in-person events?
3. Are there any predictors among the demographics, division-affiliation, interest in student affinity group celebrations, etc.?

4 Exploratory Data Analysis

4.1 Transfer/Non-Transfer Students

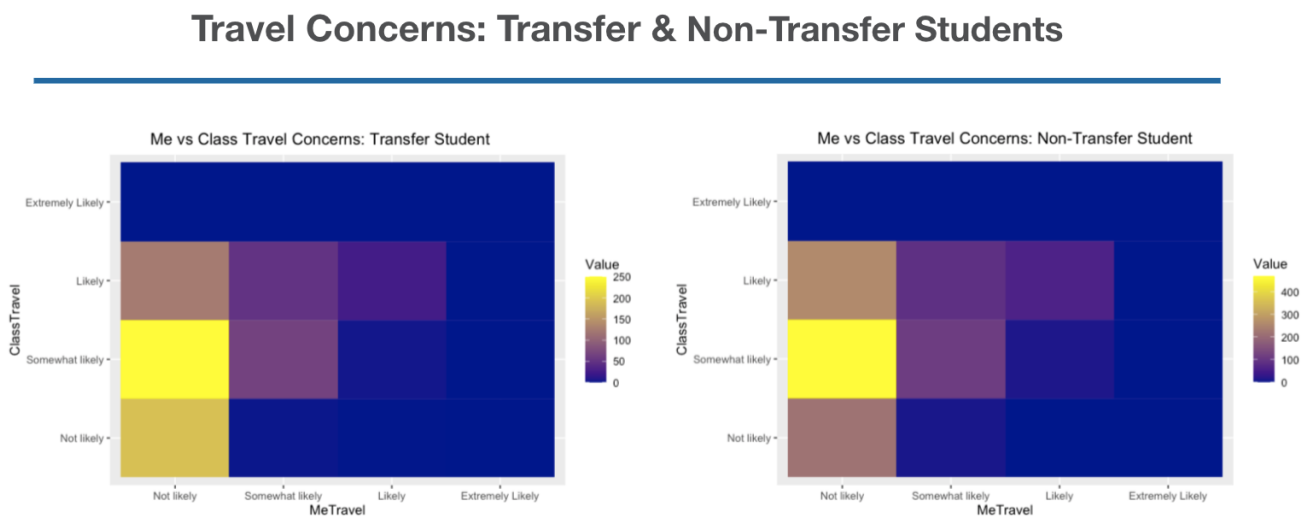
For each exclusion concern (travel, COVID, finances), there were two questions in the survey. The first asks how likely a student would personally feel excluded because of that concern, and the second question asks how likely they think their peers would feel excluded.

For each concern, we were interested in examining the relationship between these two perspectives as well as visualizing the distribution of the answers to these questions. It was also beneficial to view this relationship by meaningful segments, e.g. transfers vs non-transfers, in-state vs non-residents. In doing so, we would split our graphics into two- one graph for each segment.

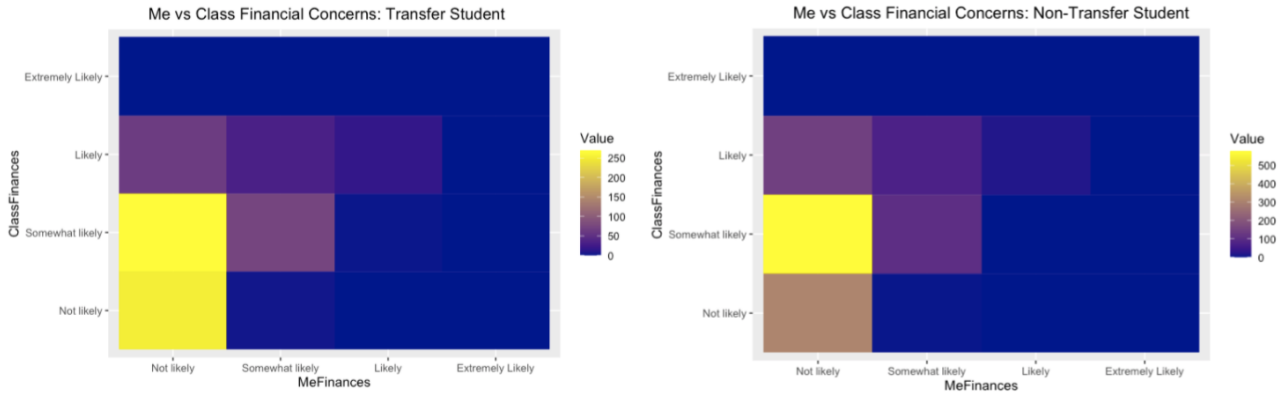
This warranted the use of 2D heat maps, where the x-axis discretely represents how a student personally feels, and the y-axis discretely represents how a student thinks their peers will feel.

Each tile represents a particular answer combination, of which there are 16 possible combinations (tiles) because there are 4 possible answers (Not likely, Somewhat likely, Likely, Extremely Likely) for each question, so 4 x 4 = 16 tiles. The value of each tile is on a gradient scale (either by proportion, or raw count). The higher the value, the brighter the color, and hence the higher the number of people whose answers matched that specific answer combination.

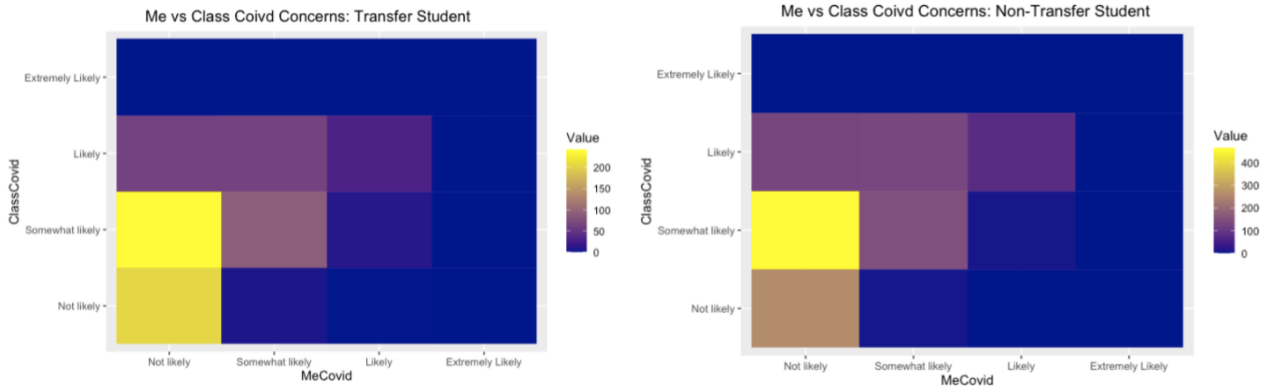
One of segmentation to investigate was transfer and non-transfer students, which was often compared. Like below each group chart were near-identical each other with almost same range color square, and only difference of color square was "Not at all"square in heat maps tail. The reason was why their scales on right value bar were difference of number of students, but they were pretty much same number of students, when you matched their numbers with different range colors.



Financial Concerns: Transfer & Non-Transfer Students



Covid Concerns: Transfer & Non-Transfer Students

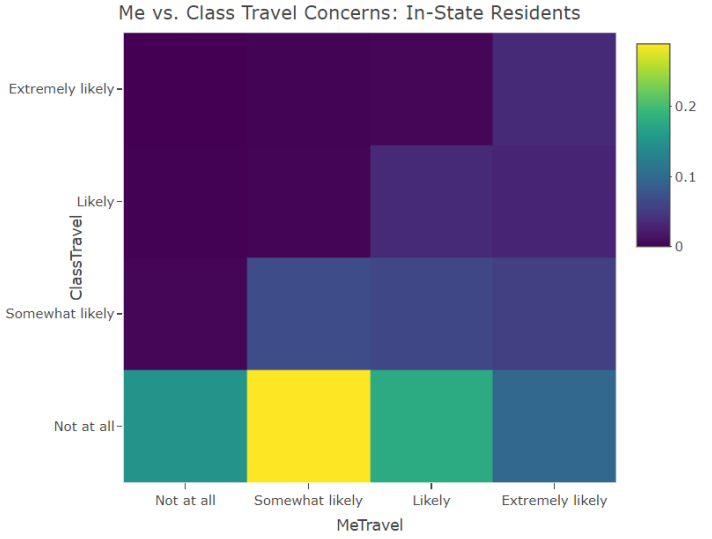


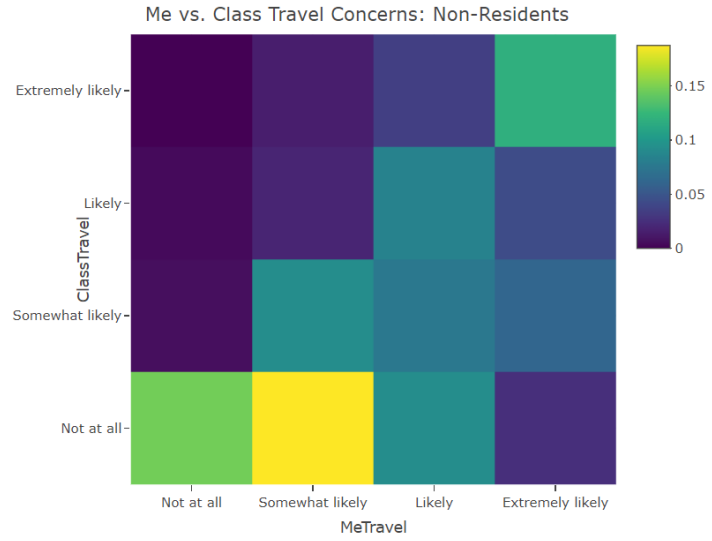
All 6 of these plots can be examined much more closely by heading to this page knowing much more details about process, especially, for number of students on value scale bar.

Concluding above three group charts with six plots, we basically stated that there were not too much difference between transfer and non-transfer students in this survey, which mean that most students were not at all/ some what likely to happened what they would be concern excluded or their peers would be concern excluded.

4.2 In-State/Non-Residents

Another interesting segmentation to investigate was in-state residents vs non-residents. The most interesting results were observed with respect to travel concerns, where many in-state resident students appear to personally feel a wide range of exclusion due to travel concerns, and interestingly enough, believe that it is not at all likely that their peers would feel excluded. However, with non-resident students, there is much more variability in both directions, and relatively more concern for their peers. The most common opinion still is that they personally are somewhat likely to feel excluded, but believe it is not at all likely that their peers would feel excluded.





For financial concerns and COVID concerns, the graphs are near-identical and less telling than the above charts about travel concerns. All 6 of these plots can be examined much more closely by heading to this page. Users can hover over each tile to see exact proportion values and download the plots as higher-resolution PNGs.

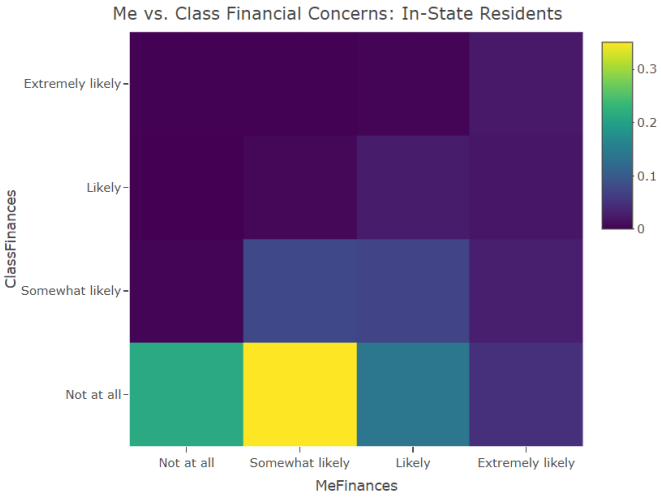


Figure 1: In-State Residents

Figure 2: Non-Residents

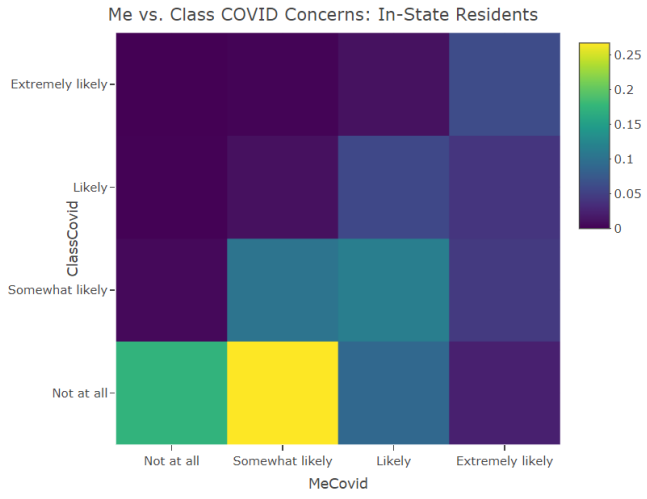


Figure 3: In-State Residents

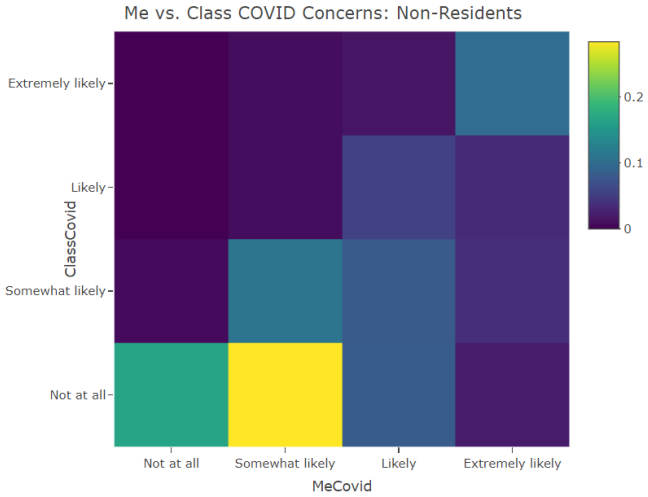
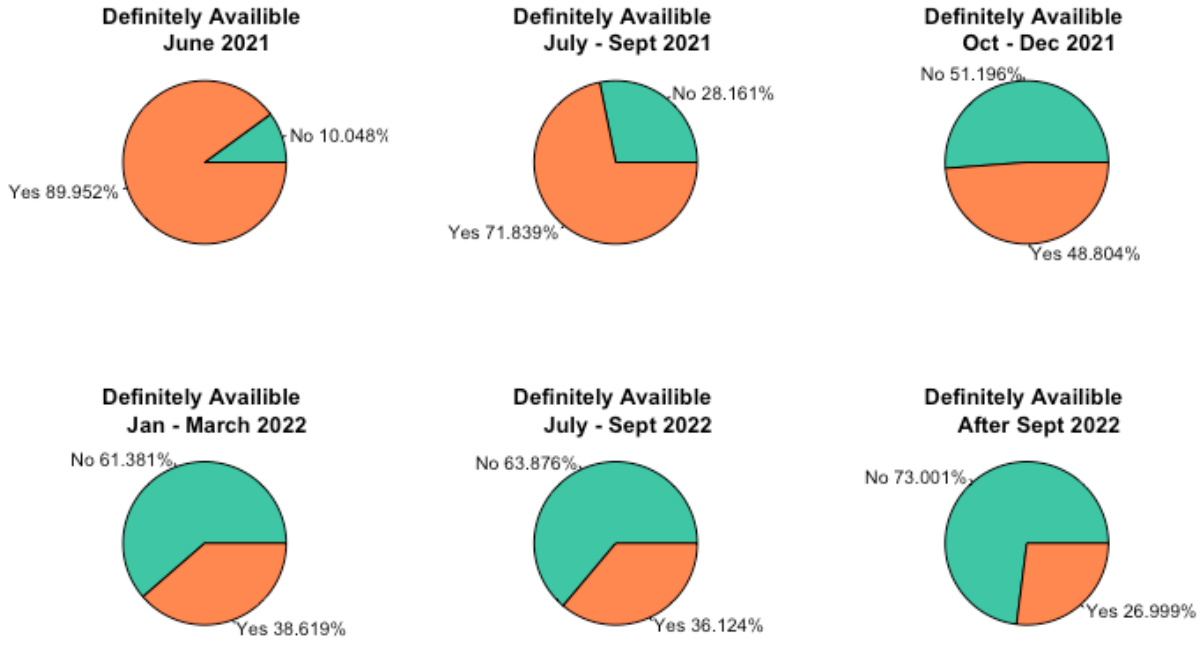


Figure 4: Non-Residents

For these concerns, regardless of residency, most students felt that it was not at all/somewhat likely that they'd feel excluded, and believed it is not at all likely that their peers would feel excluded.

4.3 Student Availability

Next, we looked into the data for the 6 different time slots, spanning from June 2021 to After June 2022. Using these indicators of availability and unavailability for future ceremonies, we examined how they related to perceptions of students being excluded.

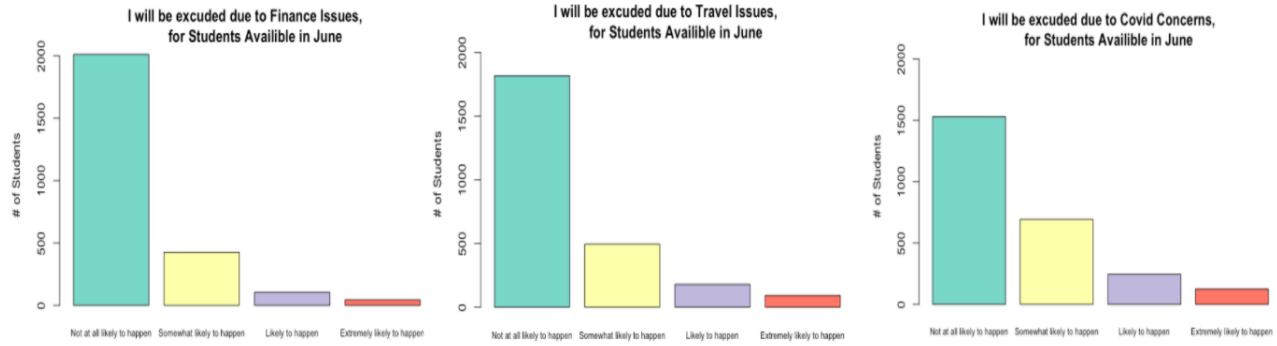


A total of 2926 students responded to the survey. The pie charts above show the availability of students for each of the six time frames. Of the 2926 student responses, 2632 students indicated that they would definitely be available in June 2021 for commencement activities. This is close to 90% of students. However, we can see that as time goes on, the number of students who are definitely available continues to drop, and reaches around only 25% within the next year and a half. This really shows how many students are unsure of their future plans, even just one year into the future. It can be difficult for students to plan for and attend commencement activities if they are not held within the few months of after graduating.

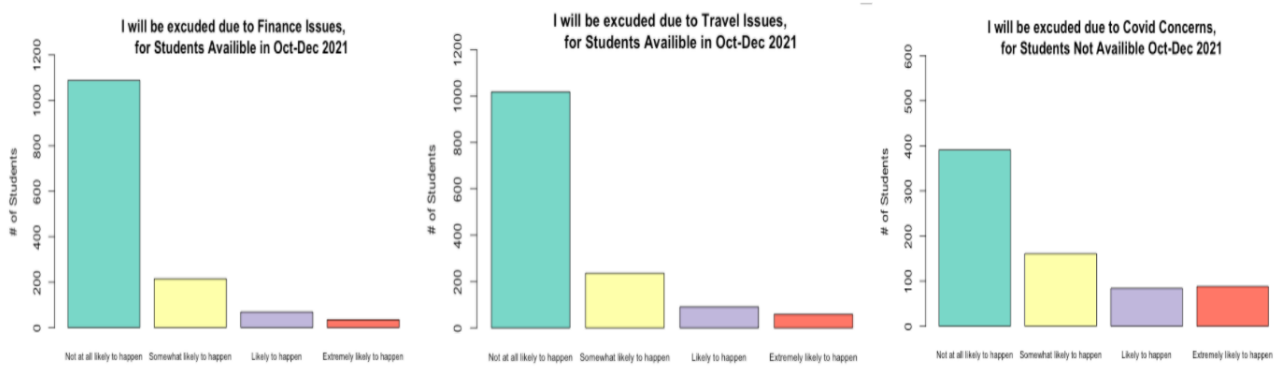
The unavailability of students for each of the six time frames also show a similar trend. For June 2021, only 5% of students, which is 157 students out of the total 2926 responses said that they were definitely not available. As time goes on, more and more students indicate that they will definitely not be available for commencement activities. By September of 2022, 40% say that they will definitely not be available.

4.4 Exclusion Concerns Regarding Availability

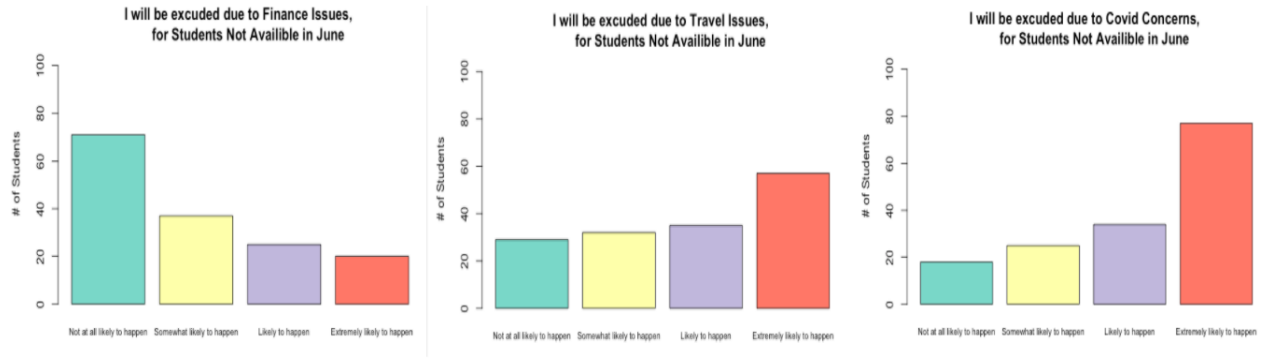
Looking into the exclusion concerns of these students available in June in the graphs below, we found that most of them believed it was not at all likely that they would be excluded due to Covid, travel, or finance issues. There are some differences in numbers, however the overall distribution stays the same and is overwhelmingly points towards “not at all likely to happen”.



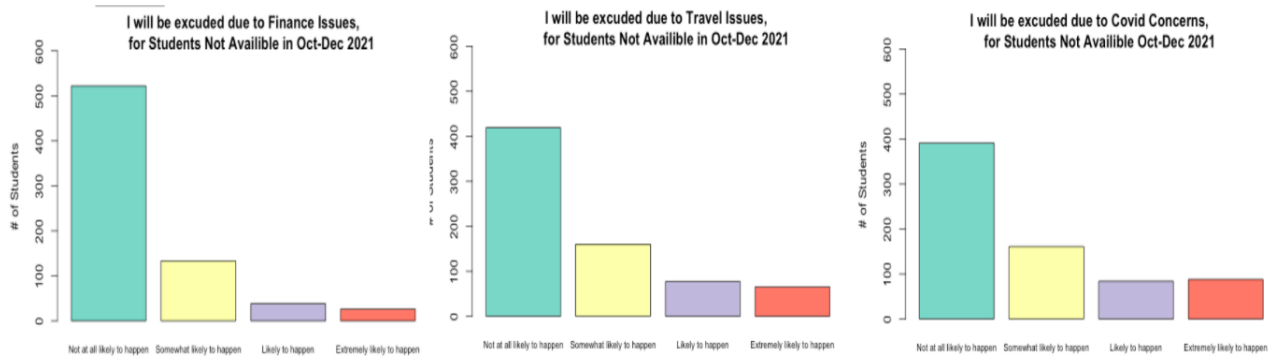
If we look further into the future, we see that the same pattern shown in the June graphs tends to stay the way it is, even with a smaller sample size of students who reported being available. As an example, the exclusion graphs for the time frame from Oct-Dec 2021 are shown below.



However, if we look at students who indicated that they would definitely NOT be available in June, this pattern changes. Looking into the exclusion concerns of these students, many of them indicated that they would likely be excluded due to travel issues and Covid concerns. However, financial issues do not seem to play a big part in not being able to attend commencement activities.

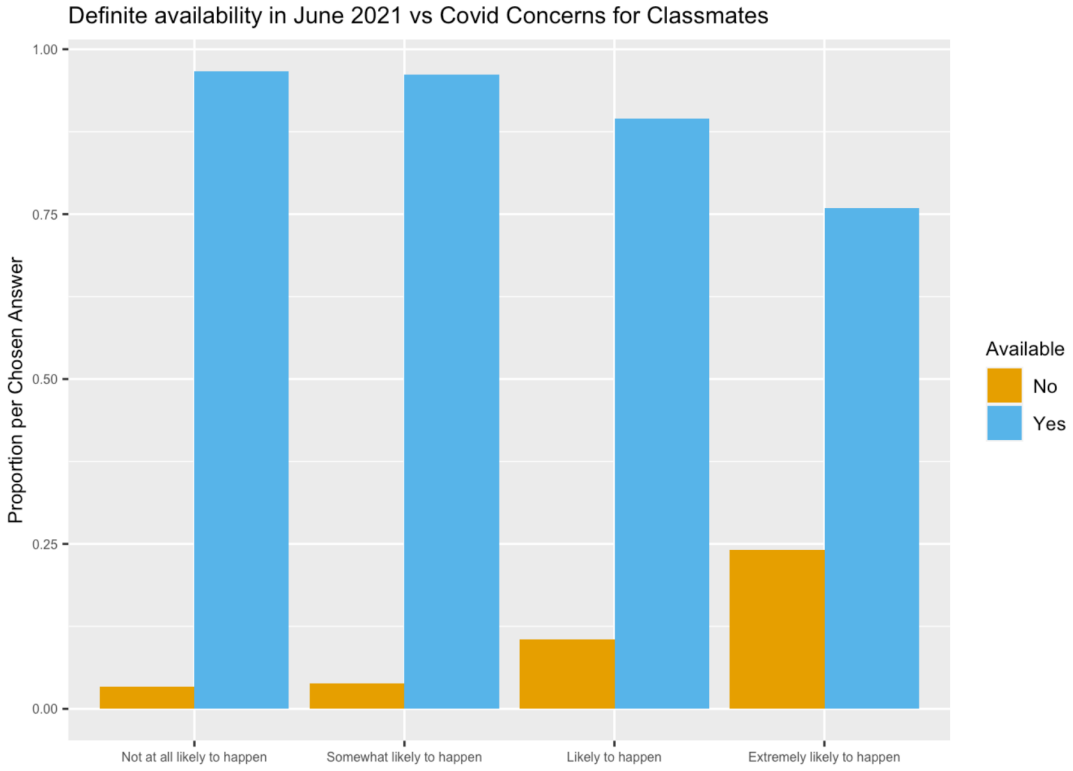


As we go move on to future time slots where students who indicate that they were NOT available, the distributions of exclusion concerns look similar to students who indicated that they were available. For example, Oct-Dec 2021 is show below. This indicates that concerns for being excluded from commencement activities further in the future is not as apparent. They may be due to other reasons apart from finance, travel, or Covid.



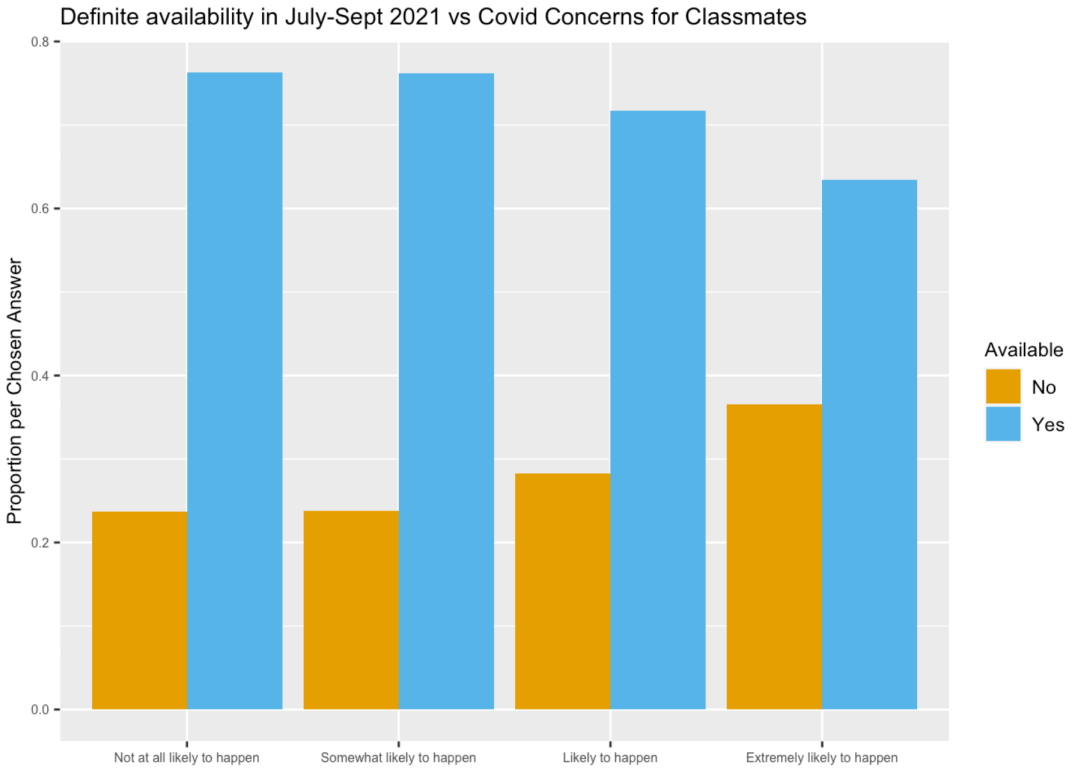
For further examination of the plots, please head to this page.

4.5 Concerns and Availability

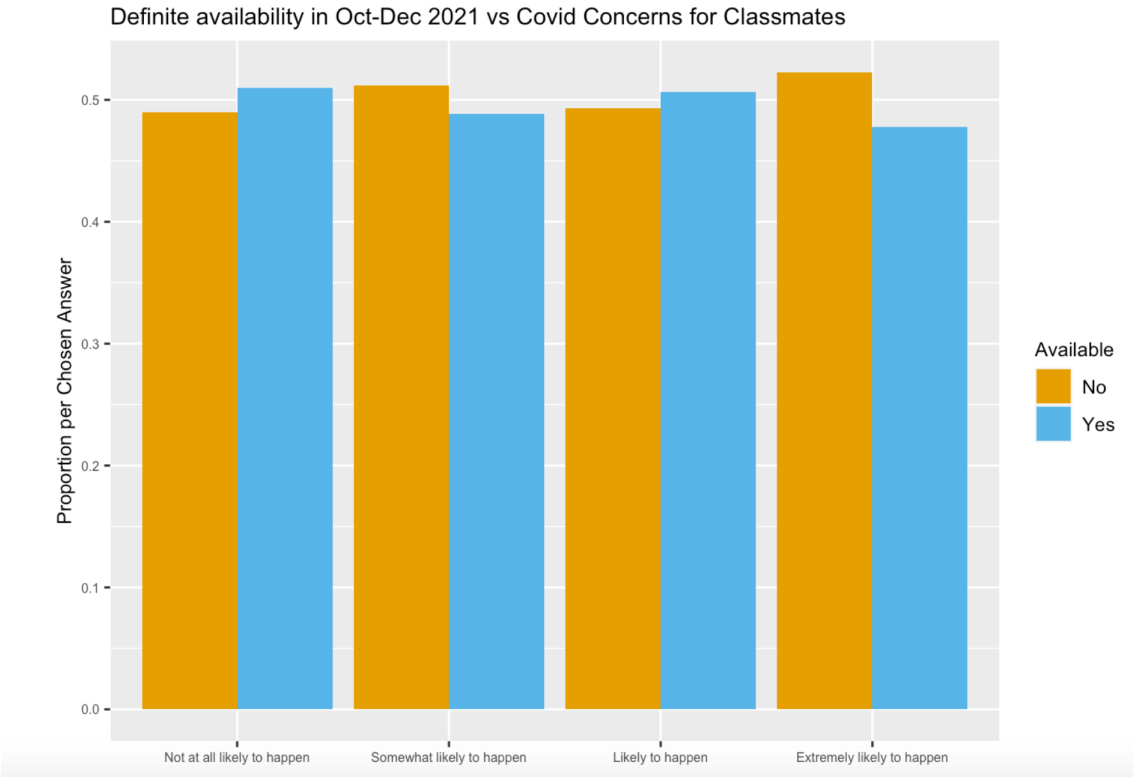


The plot above examines how likely a student perceives Covid-19 concerns to be for classmates and said student's definite availability in June. The two bars on the very right indicate that of students who thought Covid-19 concerns for class was extremely likely, 75% are definitely available for June while 25% are unsure. So what the barplots are looking for are any obvious patterns or differences in the shapes of the two bars across the four answers. For June we can see that unavailability increases as Covid-19 concerns increase.

The same plot above for July-September would also indicate a similar trend. However it is not as clear as it was for June.



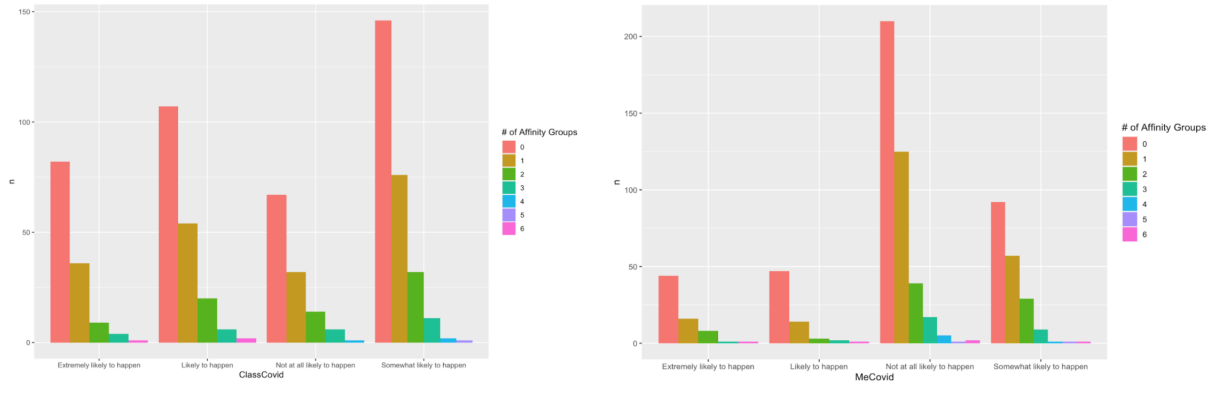
However beyond September 2021, there was no discernible difference or pattern in the shapes of the two bars across the four answers. This can be seen in the example of October-December below. This would indicate that the further into the future the month of interest is, the less of a factor exclusion concerns become in determining one's definite availability. Given that the survey asked for definite availability and unavailability, this may simply be a result of people not have a clear idea of what their plans are going to be the further away the date.



Although all plots are not on this slide, this finding was the same across all the exclusion questions. For all other additional plots for other exclusion questions and months, please head to this page.

4.6 Student Affinity Groups and Exclusion - COVID

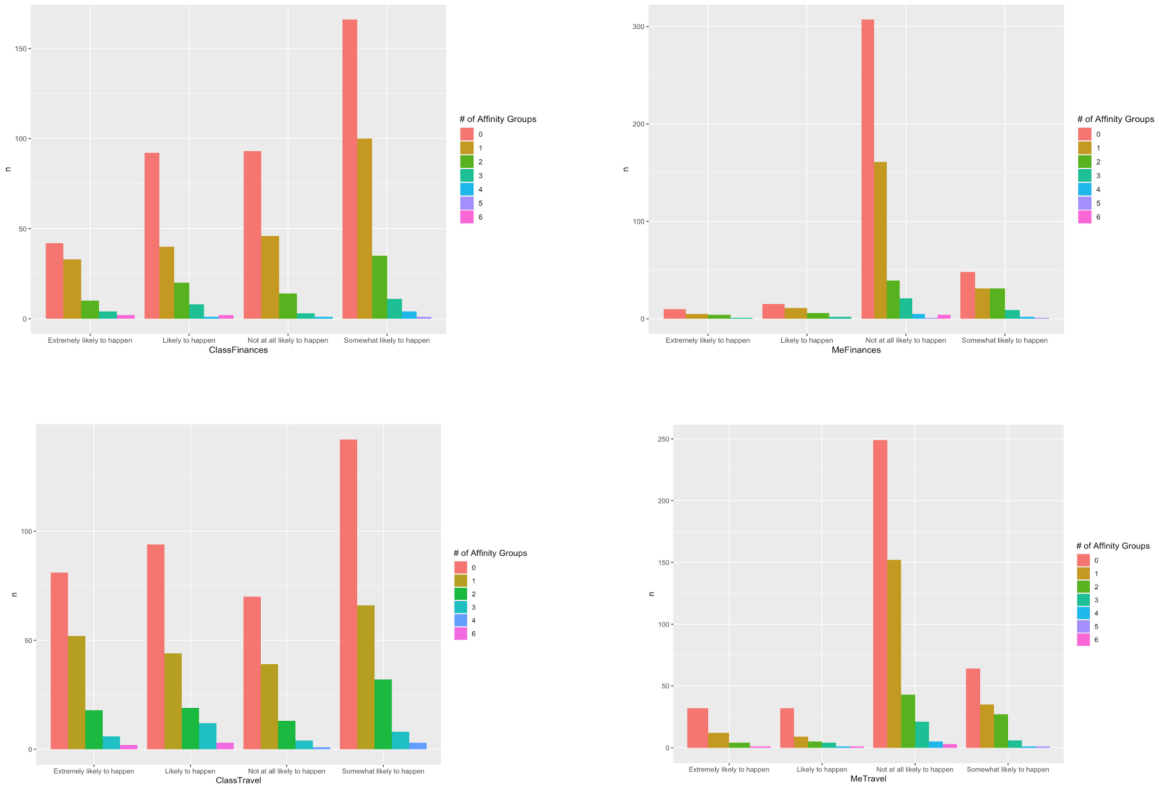
In exploring how student affinity groups may help predict exclusion, we first take a look at whether or not students find COVID health concerns being a major player in excluding them or their peers.



The graph on the left shows how respondents with various involvement in student affinity groups perceive their classmates would feel excluded as a result of health concerns regarding COVID. The graph on the right, in contrast, only shows how respondents, themselves, would feel excluded.

Based on the visualizations above, it seems that the distributions of each sentiment (likely to happen, not likely...) follow the same pattern. However, we notice that most respondents indicate that they are not interested in student affinity group celebrations - but this could be due to the fact that many students are not affiliated with affinity groups on campus. Because of this, we cannot conclude that there is a relationship between student affinity group affiliations and their sentiment regarding exclusion towards in-person ceremonies.

4.7 Student Affinity Groups and Exclusion - Finances and Travel



In analyzing how respondents perceive exclusion due to financial challenges and travel restrictions, we see that there is a larger number of students indicating that they are not concerned about

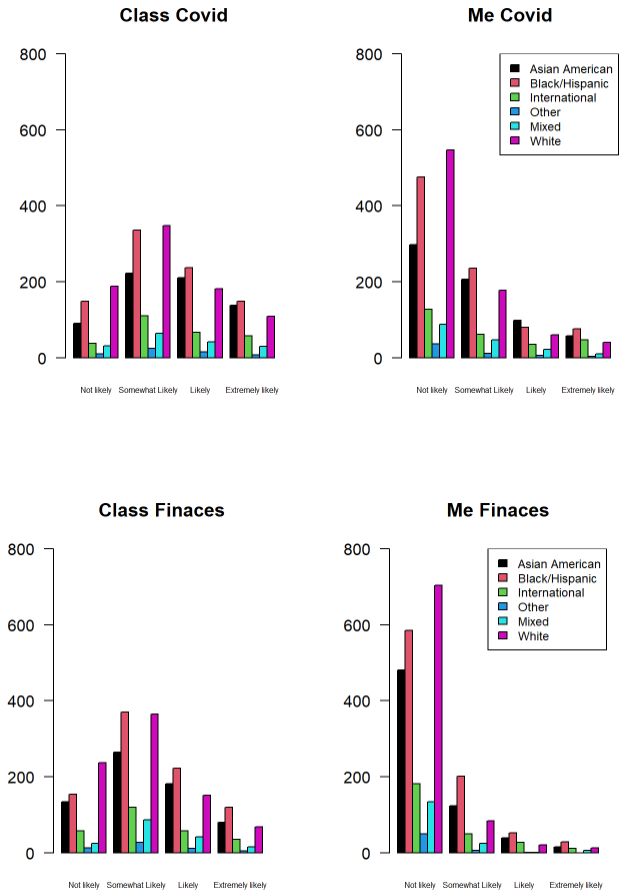
exclusion of in-person ceremonies due to financial challenges or financial restrictions - despite how many affinity groups they are affiliated with.

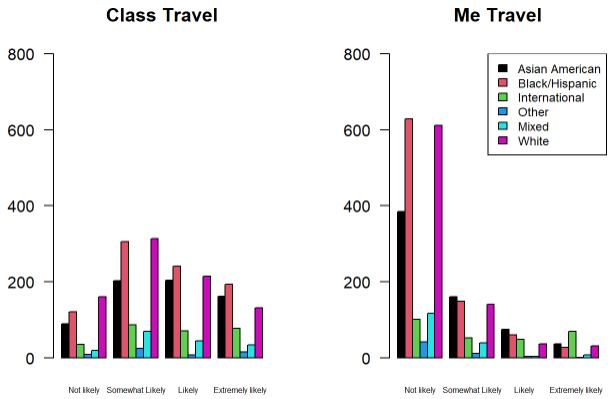
Regardless, how conclusion remains the same that there is not a strong relationship between student affinity groups and their likelihood of feeling excluded due to in-person ceremony events. Therefore, student affinity groups are likely not a good predictor of exclusion.

For further examination of the plots, please head to this page.

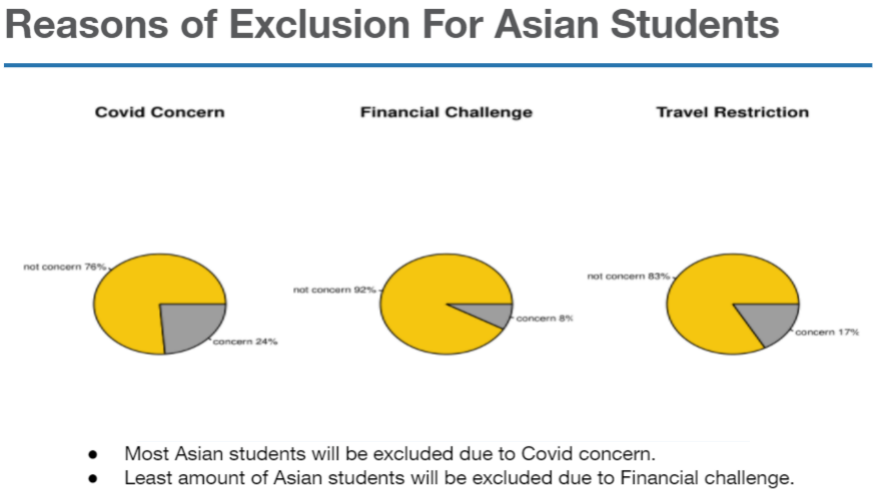
4.8 Race and Ethnic Groups with Exclusion - COVID Concern

To see how classmate perception differs from what is actually excluding students in terms of race groups, I have plotted classmate perceptions against what is actually excluding students for COVID Concern, and financial challenge, and travel restrictions with each racial group.

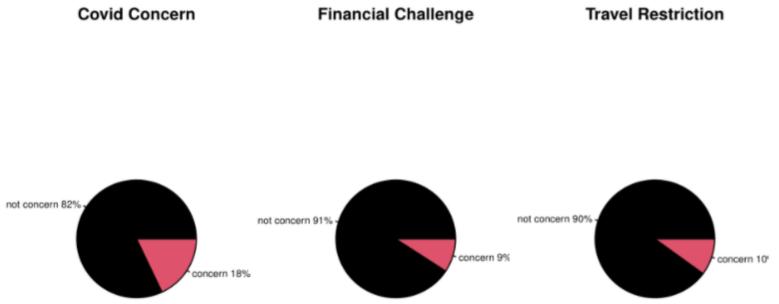




Overall, the multiple exclusion bar charts show very similar distributions across all reasons that students might feel excluded for all racial/ethnic groups. As you can see from the graphs above, that classmates' perception is not a very good predictor of what students will be excluded from the in-person event, since classmate perception tends to over predict what might exclude their classmates from the in-person event. To find out what poses the biggest challenge to each specific race group, I have done further analysis by breaking down the data in terms of percentage for each racial group and demonstrated with pie charts below. I have also pooled the "Not likely", "Somewhat likely" into not concern, and "Likely and extremely likely" into concern for more clear results.

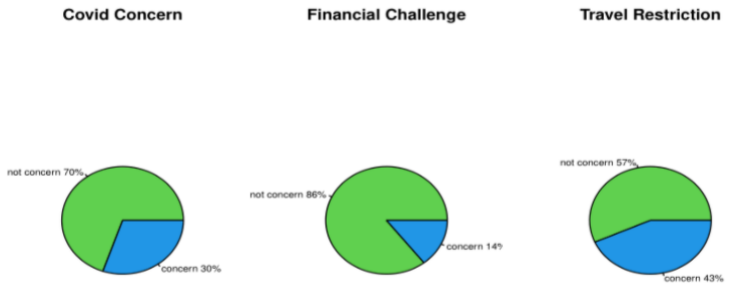


Reasons of Exclusion For Black/Hispanic Students



- Most Black/Hispanic Student will be excluded due COVID concern.
- Least amount of Black/Hispanic students will be excluded due to financial challenge.

Reasons of Exclusion For International Students



- Most international students will be excluded due to Travel restrictions.
- Least amount of international students will be excluded due to financial challenge.

Reasons of Exclusion For Other Students

- Covid Concern is the biggest reason that other students will be excluded.
- Financial Challenge will least likely to exclude other students.

- COVID concern is the biggest reason why most students will be excluded from the in-person events across all racial groups except for international students.
- Most students will not be excluded from the in-person events due to financial challenges for all racial groups.
- While travel restriction is the biggest reason why most international students will be excluded from the in-person event, it is worth mentioning that travel restriction is caused by COVID concern.
- Overall, Proportionally, COVID concern, financial challenge, and travel restriction will affect

international students the most compared to any other racial groups. Additionally, white students get affected the least proportionally to any other racial group.

For further examination of the plots above, please see this page for more details.

5 Conclusion and Recommendations

- Travel was the only concern with discernible difference between in-state and out-of-state residents in how they feel about themselves and about their peers.
- For transfer and non-transfer students for those concerns have not too much difference between themselves and others.
- Based on extensive exploratory data analysis, we are able to deduce the variables that may contribute to predicting exclusion
  - Our most indicative variable is availabilities and time.
  - We noticed that as time get further away from June 2021, students becomes less and less available for the in-person events.
- Overall, it seems that graduating students seem more focused and committed attending to commencement that follows the normal graduation timeline in June, but don't necessarily have plans or commitments to future grad activities.
- While the distributions of reasons of exclusion shows very similar pattern across all racial groups, we noticed that international students will be affected the most proportionally compared to any other racial groups.
- The common factor for exclusion and availability seems to be time, so we would recommend that commencement activities be held as soon as possible.
- The best time would be June 2021, as well as July-Aug 2021. After these time periods, it seems that the majority of students for across all demographics will find it difficult to attend commencement activities.