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Why Admitted Students Opt-out of College Enrollment?

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ABSTRACT

Understanding and improving student enrollment has always been important for departments across universities. It is imperative for universities to have a firm grip on addressing enrollment of prospects, applicants and admitted students. As per research, one out of every three students who are admitted do not enroll in that college. One of the prime reasons why universities must concentrate on increasing their enrollment rate is to avoid loss of revenue. Admitted but non-enrolled students have a negative financial impact on a university due to the loss of tuition fees while expending money on marketing and recruitment. Non-enrollment of students also results in loss of academic potential.

There can be numerous reasons why admitted students fail to enroll within a particular university, which may be specific to one university or common among many schools. Therefore, each school must identify any existing trends within its own unique admitted non-enrolled student population base.

This research concentrates on analyzing data to identify various possible factors and indicators why undergraduate prospects fail to enroll at Oklahoma State University despite getting an admission. The data for this analysis includes email communications, text messages, demographic, and admission process timestamps of students admitted for Fall 2018. The duration of the data recorded extends through November 2016 to June 2018. All data were obtained from the Marketing and Communications Department within the Undergraduate Admissions office and were de-identified.

Results from this research will help the OSU Marketing and Communications Department by understanding non-enrollment rate and patterns across demographics and communications/factors that lead to non-enrollment.

INTRODUCTION

Summer melt refers to the phenomenon in which students show an interest in applying and joining a college at the end of high-school, but do not matriculate at a college the following fall.

While summer melt is used to explain why college-intending students fail to enroll in college **at all** in the fall, this research concentrates on why admitted candidates for undergraduate studies at Oklahoma State university fail to enroll.

In this research, the data pertaining to admitted students for undergraduate studies obtained from the Marketing and Communications Department of Oklahoma State University would be analyzed to understand the trends between enrolled versus not enrolled students. It could be that the students who have not enrolled at OSU may have enrolled in some other college. Indicators that highlight the non-enrollment of admitted students will help the department understand how to improve the specific admission process to convert admitted students into enrolled students.

DATA DESCRIPTION

Data Source: Undergraduate Marketing and Communications Department, Oklahoma State University

Data Description: 49 Variables, 10,424 Observations

Every data analysis project begins with gathering and studying the data to be analyzed. Collecting relevant and efficient data is essential for any data analysis project as it establishes a strong foundation for the insights and trends of analysis. Below is a cross-tab of all the variables and description of each variable received.

Sr. No.	Variable Name	Description
1.	UID	Unique Identifier for student
2.	Active City	Name of city of student
3.	Active Region	Name of State of student
4.	Active Postal	Postal Code of student
5.	Gender	Gender of the student (M/F)
6.	Race	Race of the student
7.	Hispanic	Hispanic or not (Yes/No)
8.	First Generation	First in family to go to college (Yes/No)
9.	OSU Legacy	Legacy of OSU (0/1)
10.	OK Promise Eligible	Eligible for OK Promise scholarship or not (Yes/No)
11.	Academic Talent	Excellent Academic Records (Yes/No)
12.	Student Status	Status of student in Application Process
13.	Prospect Date	Date student changed to prospect status
14.	Inquiry Date	Date student changed to inquiry status
15.	Applicant Date	Date Student changed to an applicant
16.	Record Creation date	Date the student record was created
17.	Application Submit Date	Date student submitted application
18.	Admission Date	Date student was admitted
19.	Admitted	Admitted or not (Yes/No)
20.	Enrolled	Enrolled or not (Yes/No)
21.	Orientation Registration Date	Date student registered for Orientation
22.	Housing Application Date	Date student applied for housing
23.	Most Recent Campus Tour Registration	Date of most recent campus tour
24.	Most Recent On-Campus Event Registration	Date if most recent on-campus event registered
25.	Opt-Out Date	Date student opted out from receiving emails
26.	Interaction Date	Last interaction date with student
27.	Event Mail	Date of last event mail sent to student
28.	Social Media Email	Date of last social media email sent to student
29.	Why OSU Email	Date of "Why OSU" email sent to the student
30.	Apply Email	Date of "Apply to OSU" email sent to the student
31.	Senior Visit Email	Date of Senior Visit email sent to the student
32.	Residential Life Email	Date of Residential Life email sent to the student
33.	Viewbook Email	Date of viewbook email sent to the student
34.	Congratulations Video Email	Date of "Congratulations Video" sent to student
35.	Next Steps #1 Email	Date of first Next Steps to take email sent
36.	Next Steps #2 Email	Date of second Next Steps to take email sent
37.	Next Steps #3 Email	Date of third Next Steps to take email sent

38.	Next Steps #4 Email	Date of fourth Next Steps to take email sent
39.	% Delivered	Percent of emails delivered
40.	% Opened	Percent of emails opened
41.	% Clicked	Percent of emails clicked
42.	Total Delivered	Total number of emails delivered
43.	Total Opened	Total number of emails opened
44.	Total Clicked	Total number of emails clicked
45.	Admission Cancellation Email	Date student cancelled admission
46.	Most Recent Email Opened Subject	Subject of most recent email opened
47.	Most Recent Email Opened Date	Date of most recent email opened
48.	Interactions – Comma Separated	Sequence of email interaction to student
49.	Received Scholarship	Received scholarship or not (Yes/No)

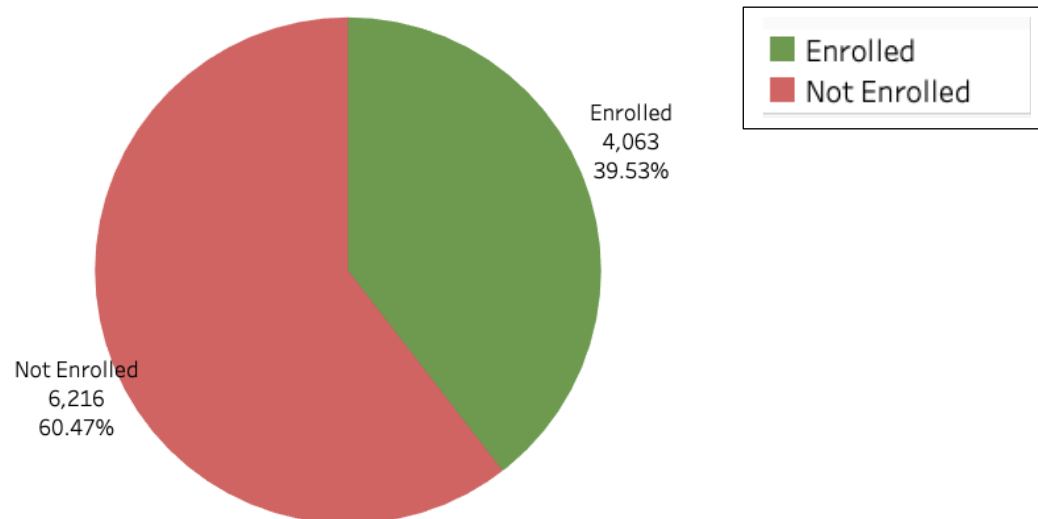
Data cleaning was performed on the variables provided to maintain a consistent format and relevant set of values throughout.

- Since this research is associated with admitted students who enrolled or did not enroll, 145 student records who were not admitted and were included in this data set were removed. Hence the resulting data set had 10,279 records of admitted students.
- Active Region had more than 50 states (within USA and outside USA states). Based on the frequency top 8 states were renamed from their abbreviation to full form, and the rest of the states were grouped into one category “Others”. The top 8 States that were renamed were Oklahoma, Texas, Arkansas, Missouri, California, Colorado, Illinois, Kansas.
- The column Race had more than 10 categories which had redundant values across several categories. These categories were renamed to include similar races into one category. For example, Asian white and Asian, Native Hawaiian are grouped into one category has Asian. The resulting categories for Race variable are “American Indian or Alaska Native”, “Asian”, “Black or African American”, “Native Hawaiian or Other Pacific” and “White”.
- OSU Legacy variable indicates whether the student was an OSU Legacy, that is, one or more family members who are an alum of OSU. The initial values of this column were 0, 1, yes or no. The values 1 were replaced with “Yes” and values 0 were replaced with “No”.

DATA ANALYSIS

Descriptive analysis was performed on the main data set and derived sub-datasets to understand reasons why admitted students opt out of enrollment.

Throughout the analysis the below color-coding will be maintained:



Out of the 10,279 admitted students for fall 2018, 60% did not enroll while only 40% enrolled. Due to this ratio, further analysis on demographics and other relevant factors of admitted students were analyzed to understand the nature of enrolled students versus nature of students who did not enroll. Subsequent insights and conclusions were drawn based on the analysis.

Graph 1: Enrolled vs Not Enrolled Students by Gender

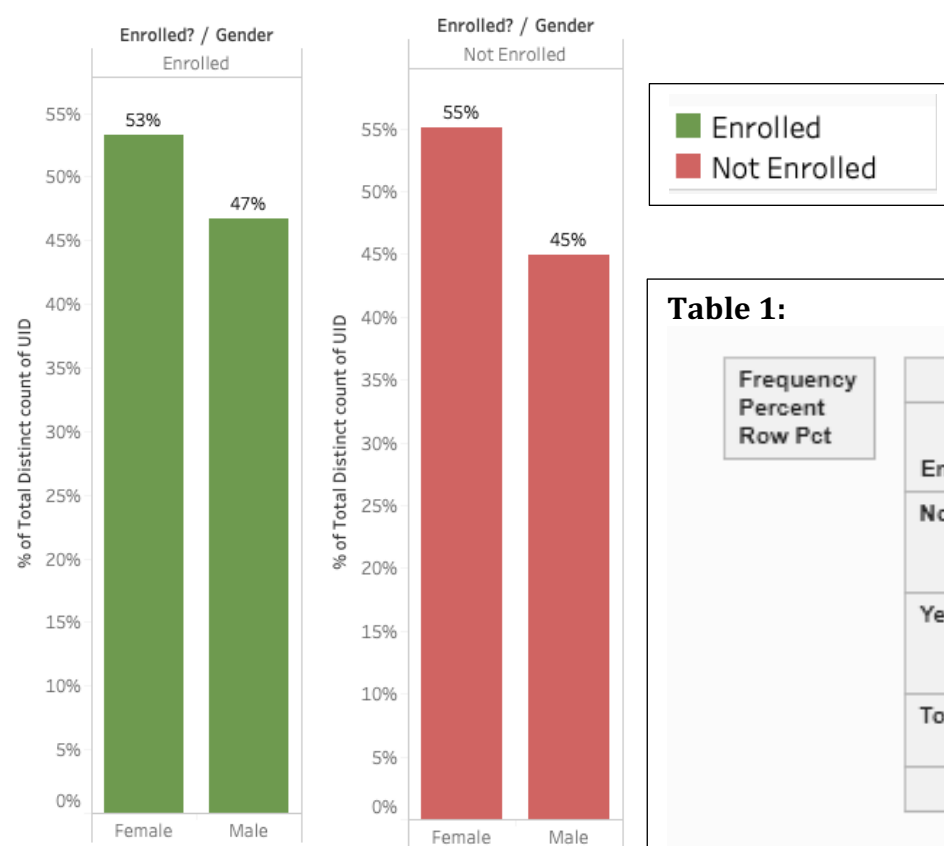
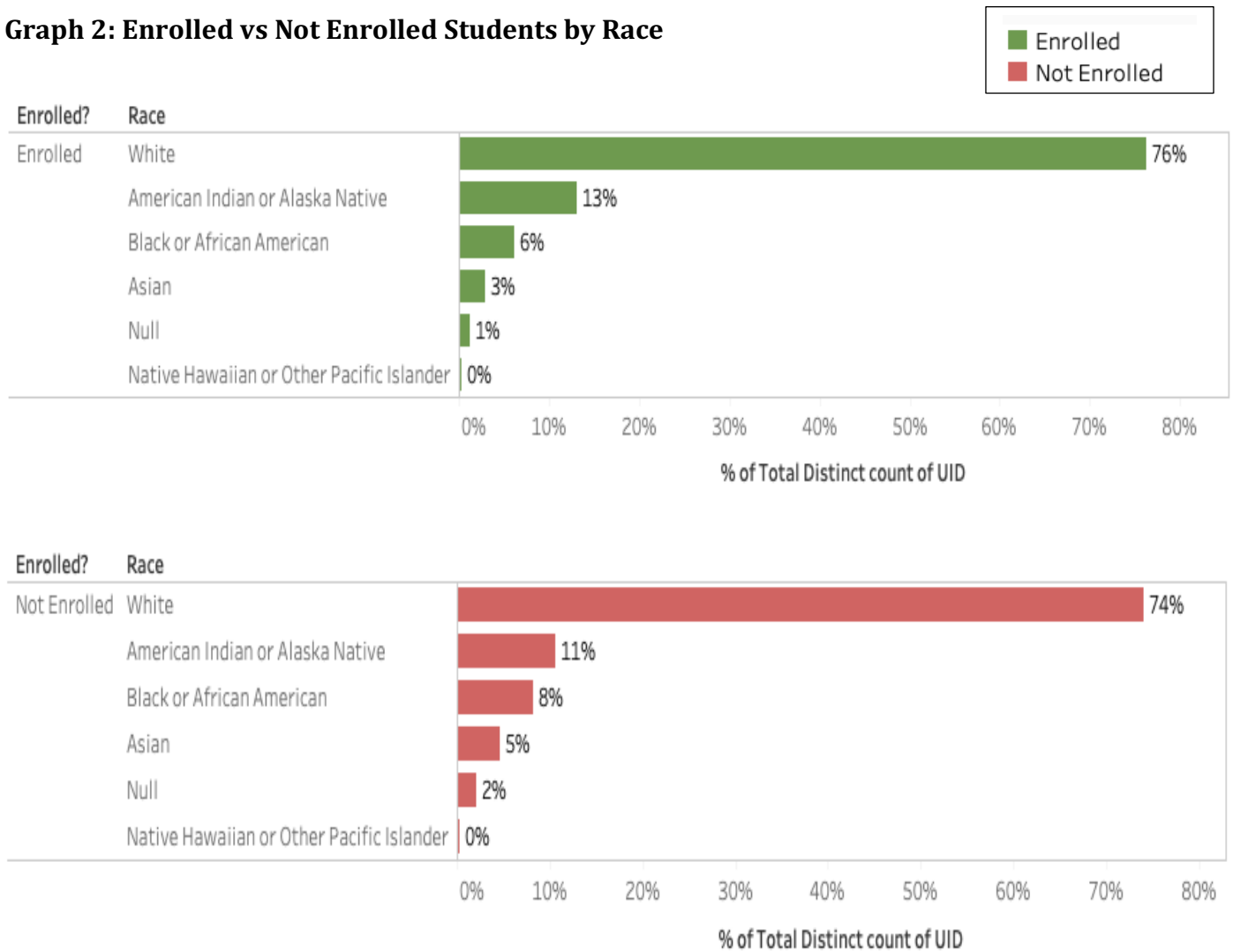


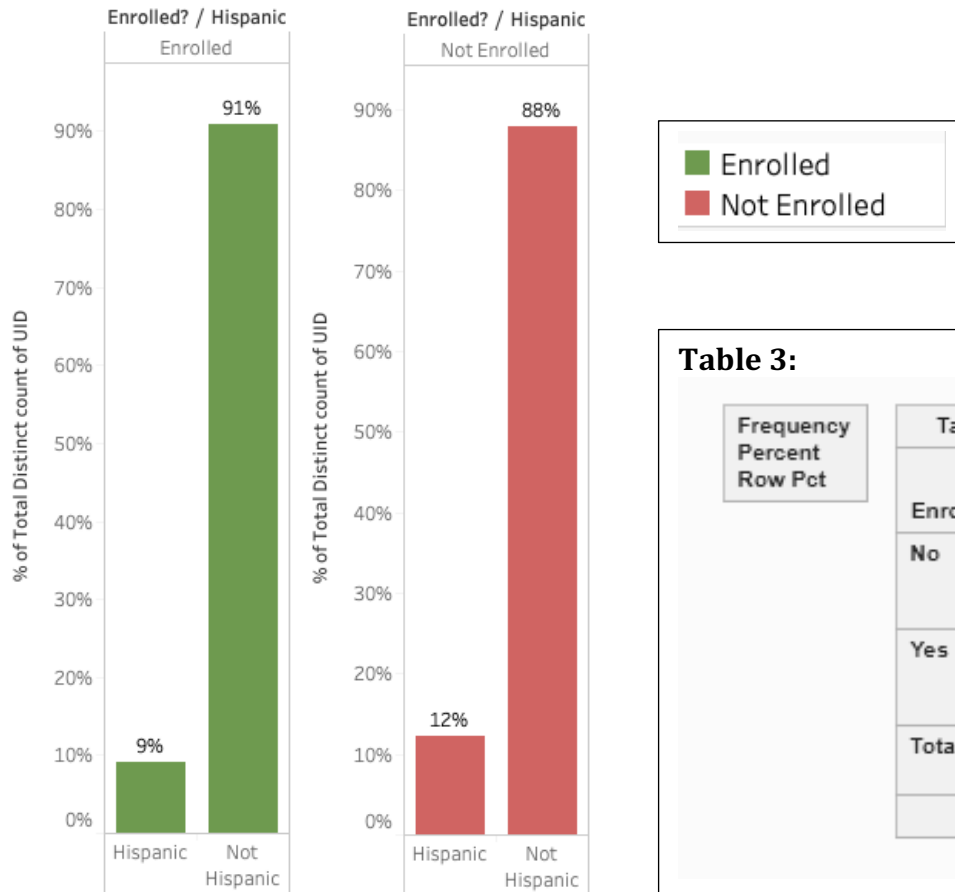
Table 1:

Frequency Percent Row Pct	Table of Enrolled? by Gender			
	Enrolled?	Gender		
		F	M	Total
	No	3424 33.31 55.08	2792 27.16 44.92	6216 60.47
	Yes	2165 21.06 53.29	1898 18.46 46.71	4063 39.53
	Total	5589 54.37	4690 45.63	10279 100.00
Frequency Missing = 145				

Graph 2: Enrolled vs Not Enrolled Students by Race**Table 2:**

Frequency
Percent
Row Pct

Table of Enrolled? by Race						
Enrolled?	Race					
	American Indian or Alaska Native	Asian	Black or African American	Native Hawaiian or Other Pacific	White	Total
No	658	292	509	23	4608	6088
	6.52	2.89	5.04	0.23	45.61	60.29
	10.81	4.80	8.36	0.38	75.66	
Yes	533	118	248	11	3100	4010
	5.28	1.17	2.46	0.11	30.70	39.71
	13.29	2.94	6.18	0.27	77.31	
Total	1191	410	757	34	7708	10098
	11.79	4.06	7.50	0.34	76.31	100.00
Frequency Missing = 326						

Graph 3: Enrolled vs Not Enrolled Students by Hispanic**Table 3:**

Enrolled?	Table of Enrolled? by Hispanic		
	Hispanic		Total
	No	Yes	
No	5429 53.07 87.86	750 7.33 12.14	6179 60.41
Yes	3681 35.99 90.89	369 3.61 9.11	4050 39.59
Total	9110 89.06	1119 10.94	10229 100.00

Frequency Missing = 195

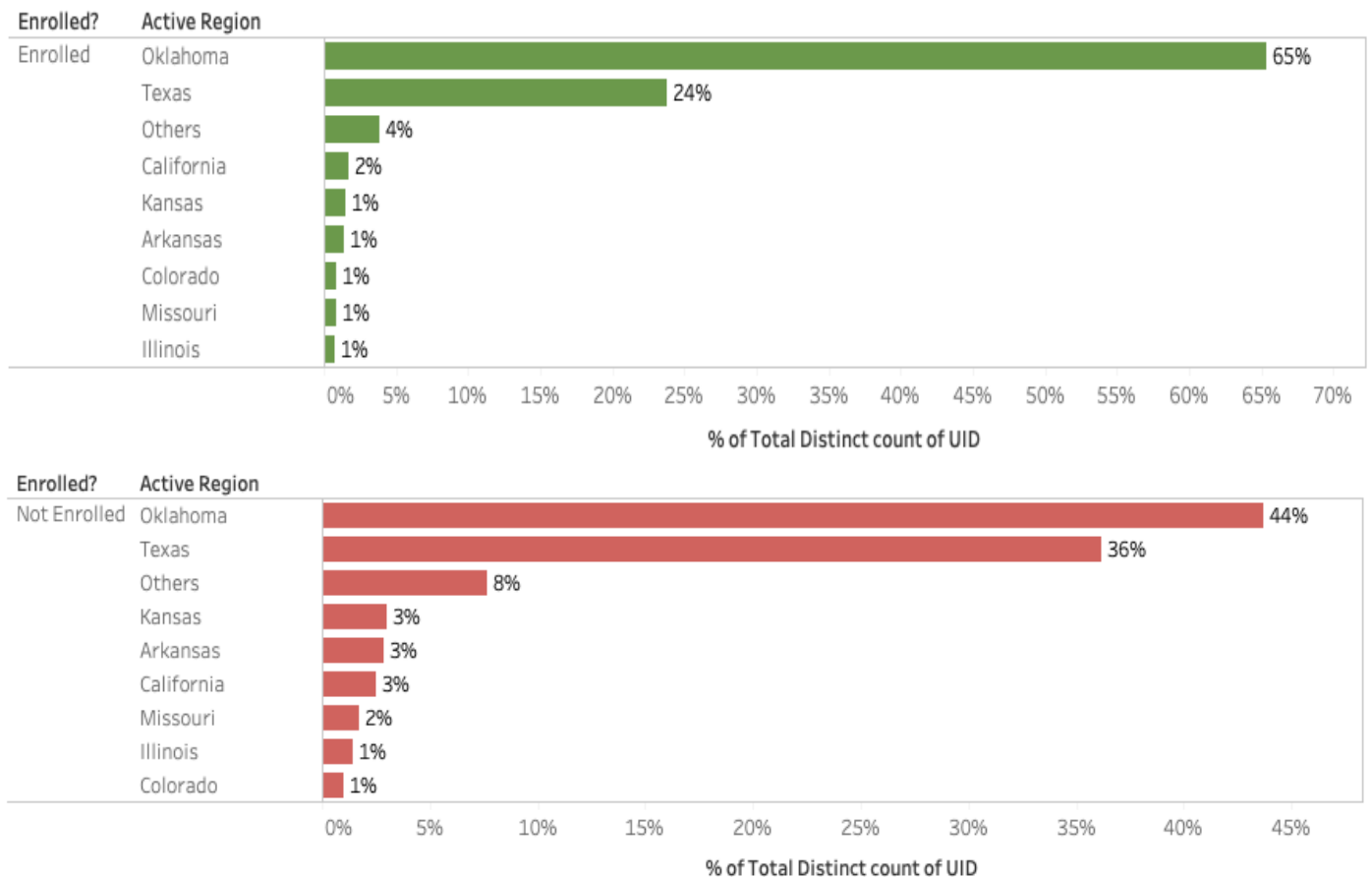
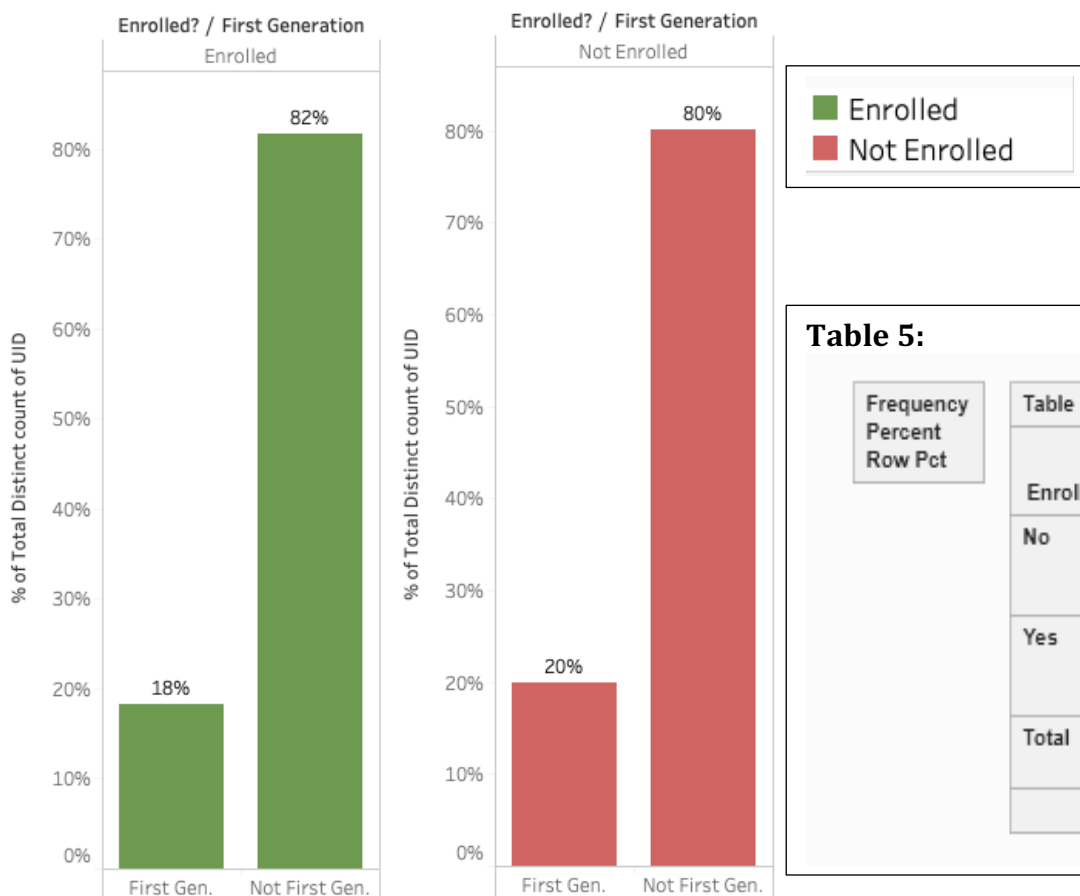
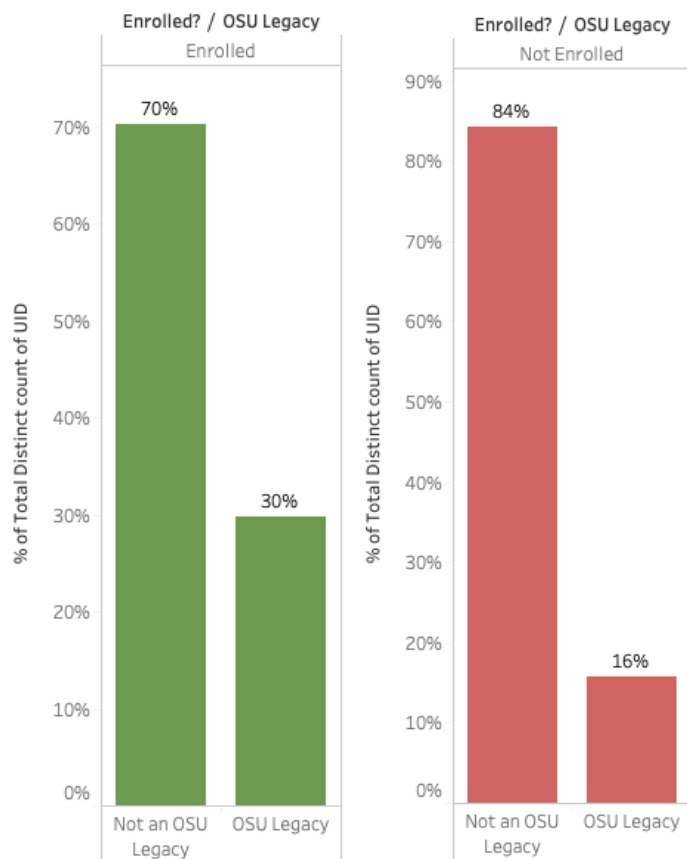
Graph 4: Enrolled vs Not Enrolled Students by States (Active Regions)

Table 4:

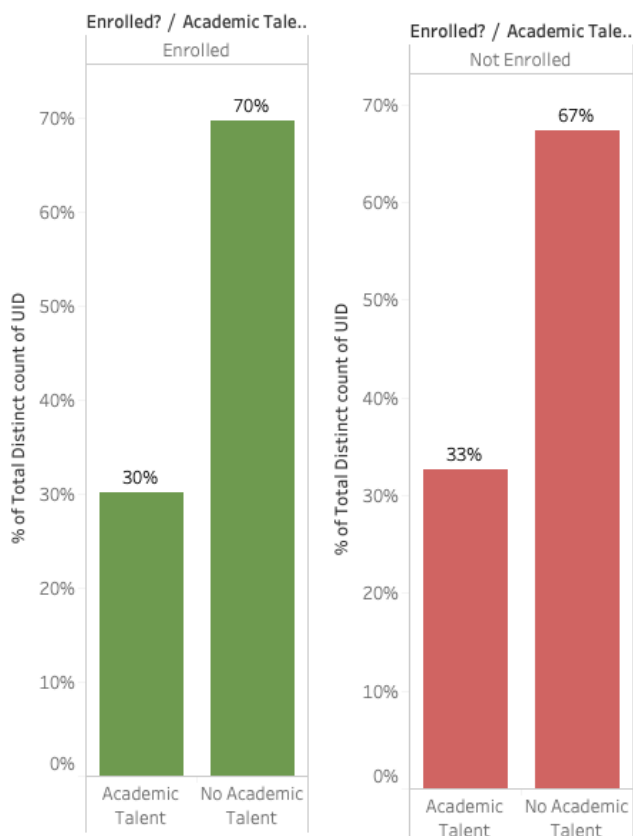
Frequency Percent Row Pct	Table of Enrolled? by Active Region										
	Enrolled?	Active Region									
		Arkansas	California	Colorado	Illinois	Kansas	Missouri	Oklahoma	Others	Texas	Total
No	178	156	63	88	188	105	2714	477	2249	6216	
	1.73	1.52	0.61	0.88	1.81	1.02	26.40	4.64	21.88	60.47	
	2.88	2.51	1.01	1.42	2.99	1.69	43.66	7.67	36.18		
Yes	57	71	35	29	60	33	2653	158	967	4063	
	0.55	0.69	0.34	0.28	0.58	0.32	25.81	1.54	9.41	39.53	
	1.40	1.75	0.86	0.71	1.48	0.81	65.30	3.89	23.80		
Total	235	227	98	117	246	138	5367	635	3216	10279	
	2.29	2.21	0.95	1.14	2.39	1.34	52.21	6.18	31.29	100.00	
Frequency Missing = 145											

Graph 5: Enrolled vs Not Enrolled Students by First Generation**Table 5:**

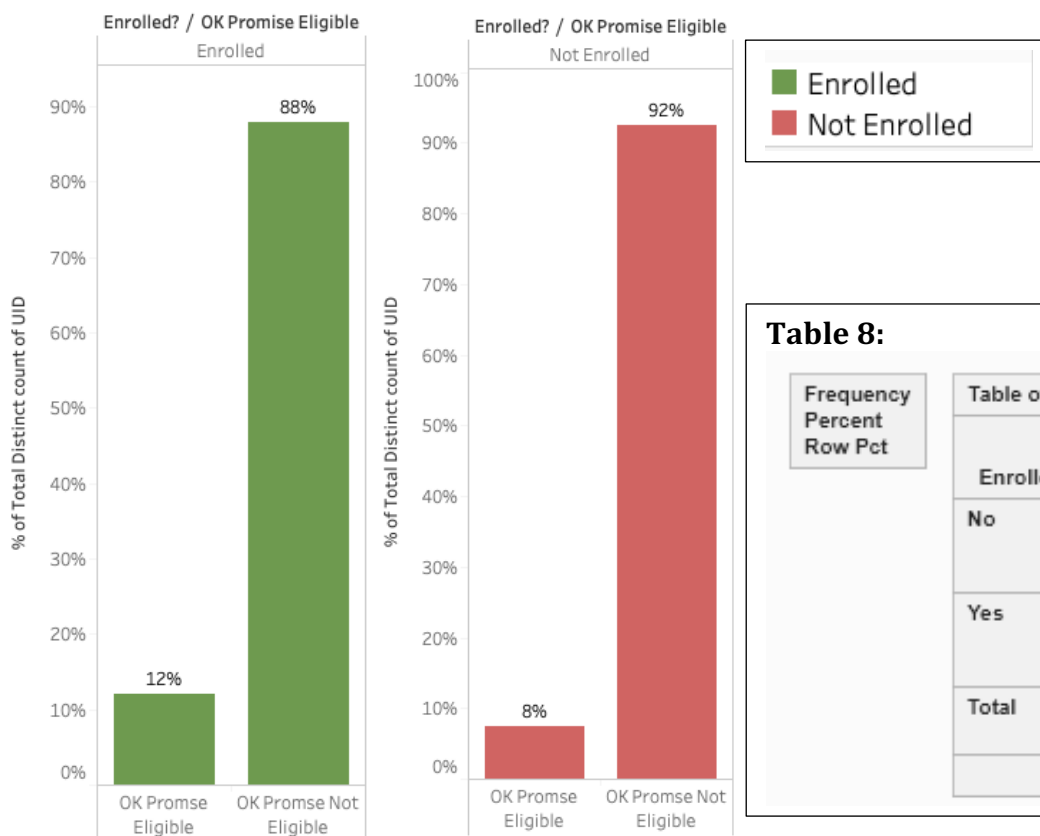
Frequency Percent Row Pct	Table of Enrolled? by First Generation			
	Enrolled?	First Generation		
		No	Yes	Total
No		4981	1235	6216
		48.46	12.02	60.48
		80.13	19.87	
Yes		3319	743	4062
		32.29	7.23	39.52
		81.71	18.29	
Total		8300	1978	10278
		80.76	19.24	100.00
Frequency Missing = 146				

Graph 6: Enrolled vs Not Enrolled Students by OSU Legacy**Table 6:**

Enrolled?	Table of Enrolled? by OSU Legacy		
	OSU Legacy		
	No	Ye	Total
No	5210 50.95 84.25	974 9.53 15.75	6184 60.48
Yes	2838 27.76 70.23	1203 11.77 29.77	4041 39.52
Total	8048 78.71	2177 21.29	10225 100.00
Frequency Missing = 199			

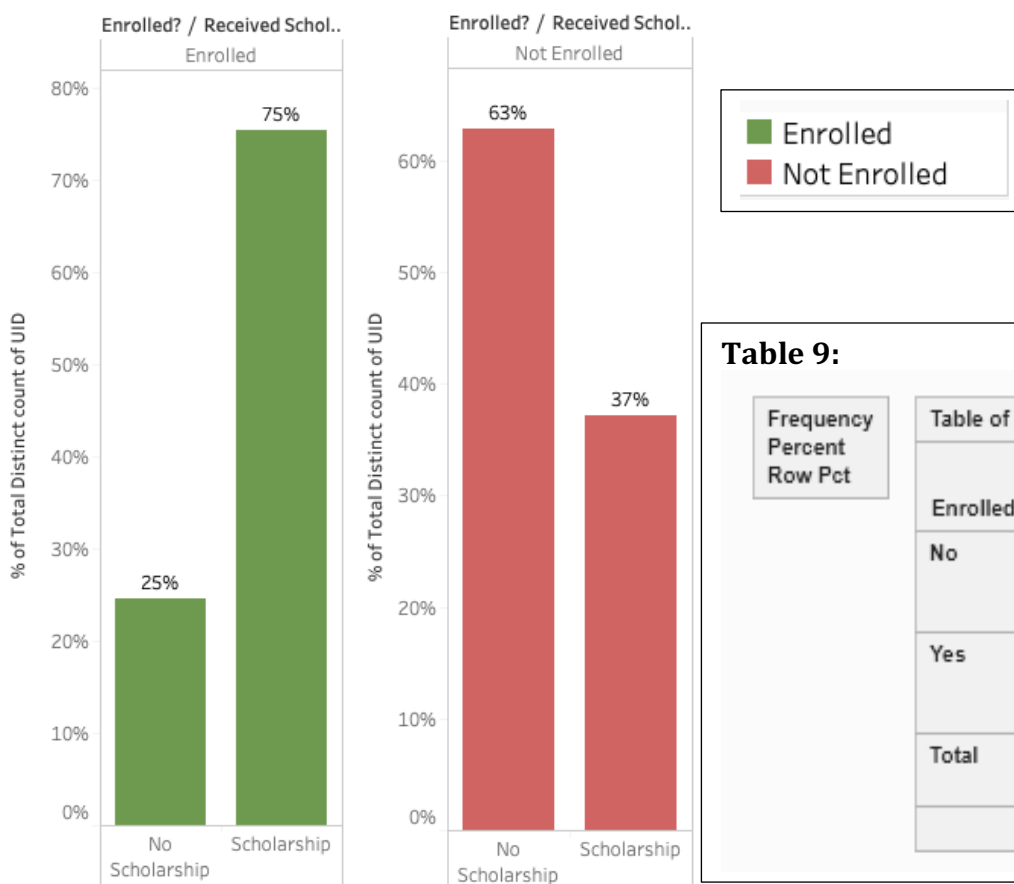
Graph 7: Enrolled vs Not Enrolled Students by Academic Talent**Table 7:**

Enrolled?	Table of Enrolled? by Academic Talent		
	Academic Talent		
	No	Yes	Total
No	4185 40.71 67.33	2031 19.76 32.67	6216 60.47
Yes	2834 27.57 69.75	1229 11.96 30.25	4063 39.53
Total	7019 68.28	3260 31.72	10279 100.00
Frequency Missing = 145			

Graph 8: Enrolled vs Not Enrolled Students by OK Promise Eligible**Table 8:**Frequency
Percent
Row Pct

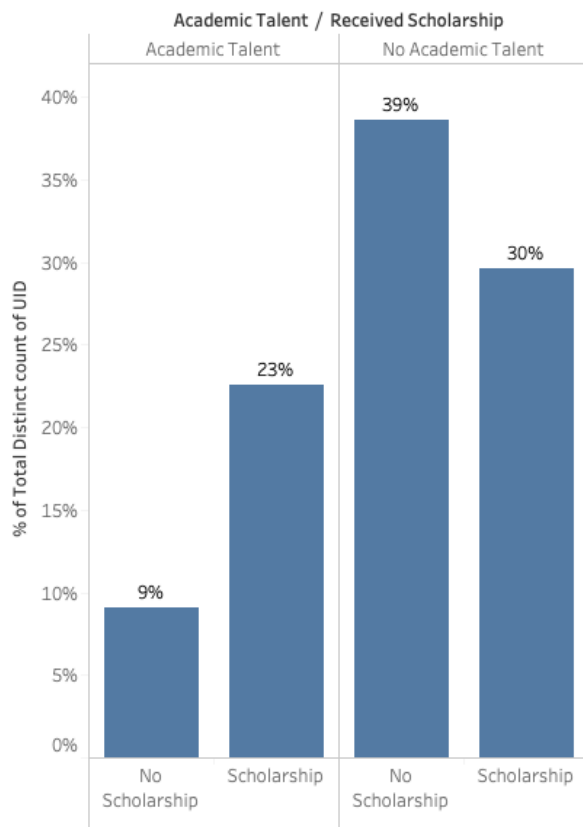
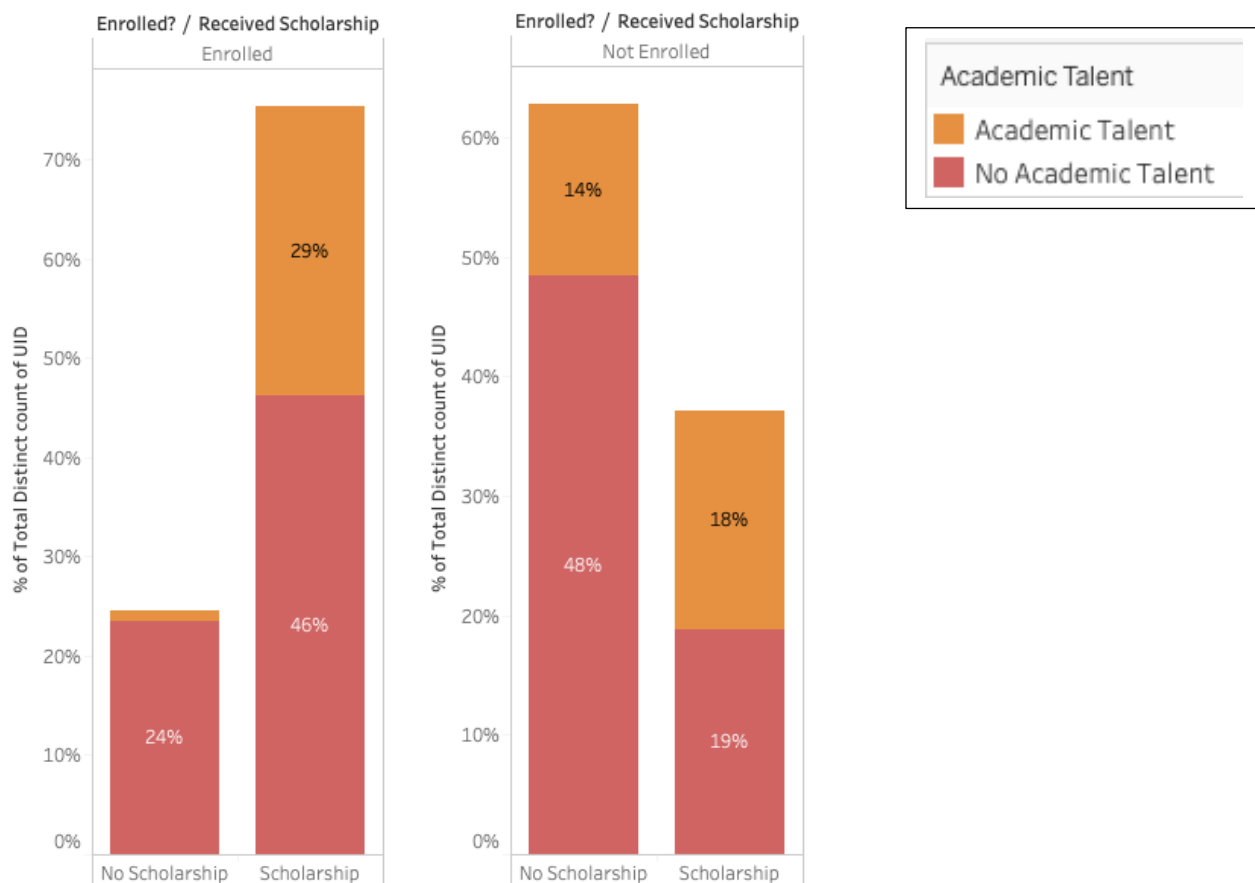
Enrolled?	OK Promise Eligible		
	No	Yes	Total
No	5749 55.93 92.49	467 4.54 7.51	6216 60.47
Yes	3571 34.74 87.89	492 4.79 12.11	4063 39.53
Total	9320 90.67	959 9.33	10279 100.00

Frequency Missing = 145

Graph 9: Enrolled vs Not Enrolled Students by Scholarship Received**Table 9:**Frequency
Percent
Row Pct

Enrolled?	Received Scholarship			
	#N/	No	Yes	Total
No	6 0.06 0.10	3902 37.96 62.77	2308 22.45 37.13	6216 60.47
Yes	1 0.01 0.02	1000 9.73 24.61	3062 29.79 75.36	4063 39.53
Total	7 0.07	4902 47.69	5370 52.24	10279 100.00

Frequency Missing = 145

Graph 10: Admitted Students Academic Talent by Scholarship Received**Graph 11: Enrolled/Not Enrolled Students by Scholarship Received**

DATA INSIGHTS

- 1) 53% of students who enrolled were females, 55% of students who did not enroll were females. The female to male ratio is almost the same for enrolled vs. not enrolled students. Amongst the overall admits, the highest number of students are females who do not enroll (Approx. 33%). [From Graph 1 and Table 1]
- 2) Approximately 76% of enrolled students are White Americans and 74% of the not enrolled students are White Americans. The highest number of admitted students who do not enroll belong to the White American category (Approx. 45%). [From Graph 2 and Table 2]
- 3) 65% of students enrolled at the undergraduate program are from Oklahoma followed by 24% from Texas. 44% of students that do not enroll are from Oklahoma followed by 36% of not-enrolled students from Texas. [From Graph 4 and Table 4]
- 4) Approximately 80% of students who enrolled in the undergraduate Marketing and Communications department are not first generation. Also, 80% of students who did not enroll at OSU Marketing and Communications Department are not first generation. However, of the admitted students, the number of first-generation students who do not enroll is higher than the number of first-generation students who do enroll (approximately twice) [From Graph 5 and Table 5]
- 5) 70% of the enrolled students are not an OSU Legacy (none of the family members have been alumnus of OSU) 84% of not-enrolled students are not an OSU Legacy (none of the family members have been alumnus of OSU) [From Graph 6 and Table 6]
- 6) Only 30% of the admitted students who **enroll** have Academic Talent (**70% have no academic talent listed**) 33% of the admitted students who do not enroll have Academic Talent (67% has no academic talent) Amongst the admitted students, **20% students who have Academic talent do not enroll**. [From Graph 7 and Table 7]
- 7) 92% of students who do not enroll are not OK Promise Eligible (OK Promise is a state financial aid program for families who make than less than \$55,000/year and covers the cost of tuition at OSU) Only 12% of students who enroll are OK Promise Eligible. [From Graph 8 and Table 8]
- 8) 75% of students who enroll in the undergraduate Marketing and Communications department at OSU have received a scholarship, while 63% of students who do not enroll have not received a scholarship. 38% of the admitted students are students who do not receive a scholarship and do not enroll at OSU. [From Graph 9 and Table 9]

CONCLUSION

An article published in 2016, “Top 10 reasons you should attend Oklahoma State University”, by Karolyn Bolay, listed great educational value, undergraduate research opportunities, OSU career services, faculty interaction, variety of academic options, great residential life options, great culture, on-campus job opportunities, athletics, and America’s greatest homecoming as some of the top 10 reasons to join OSU.

However, the undergraduate enrollment rate at Oklahoma State University was only 40% as opposed to the 60% non-enrollment rate. Based on the research and analysis performed on the data provided by the department, several insights were collected. Some of the factors that could be possible reasons of the low enrollment rate based on the analysis are as follows.

Firstly, scholarship plays an important role in a student’s education life. From the statistics, we saw that approximately 40% of the admitted students who did not receive scholarship had not enrolled. Students in need of scholarship might decide to not enroll into college owing to financial situations and no scholarship.

Second factor could be the OK Promise eligibility. Approximately 56% of admitted students who are not eligible for the OK Promise state financial aid did not enroll at OSU. Students who do not end up getting a scholarship or are not eligible for OK Promise either, may find themselves not able to enroll due to financial reasons.

Thirdly, 20% of the admitted students who have academic talent did not enroll. The reasons could be multiple. However, it is essential to ensure that the students who are high academic achievers enroll once admitted.

Out of the total admitted students, 68% had no exceptional academic talent. Lesser scholarships were given since number of academic talents reduces. 46% of admitted students who enrolled had no academic talent but were awarded with scholarship [From Graph 11]. It is quite possible that students deserving scholarship did not receive any aid, and hence decided to opt-out of enrollment.

30% of admitted students did have academic talent and received a scholarship, while only 23% of admitted students who had academic talent received scholarship. [From Graph 10]

Fourth, most of the students, independent of enrollment are from Oklahoma and Texas states. One of the reasons that the number of student enrollment and non-enrollment being same and high within these states could be the proximity from their homes as well as having many universities competing for the same students in these areas.

Lastly, 33% of the admitted students who do not enroll are female. Several reasons could contribute to this enrollment rate. However, there are fewer males who enroll at OSU as compared to the females who enroll.

Several other reasons could contribute to the enrollment rate. Like the income of the families of students that do not enroll or the communication between the students and department prior to the decision of non-enrollment or students with academic talent have not received sufficient amount of financial aid or scholarship. Further research should be done with those students who are admitted to OSU but ultimately do not enroll for a class. Without this vital information, descriptive information is all that can be analyzed.

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