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Undergraduate Engineering Admissions Change Proposal
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Proposal to Raise Admissions Criteria for Undergraduate Engineering Degree Programs

The Cullen College of Engineering recommends that the admissions criteria for all of the degree programs be raised. In this proposal are proposed new criteria for First Time In College freshmen (FTIC), and for transfer students. In general, these criteria have been determined at least in part based on successful student characteristics, from the past, from groups such as degreed students in engineering.

FTIC Admissions

Based on the data on admitted students for the past 11 years, and on detailed information about the 1400 students who have earned BS degrees in engineering in the last 6 years, we would recommend that the FTIC admissions criteria be adjusted as follows. The current criteria and the proposed criteria are listed in the table below.

Rank in class	Current SATT (Math+CR)	Current SAT CR	Current ACT Composite	Current ACT Engl. Usage	**Proposed SATT (Math+CR)**	**Proposed SAT CR**	**Proposed ACT Composite**	**Proposed ACT Engl. Usage**
1st Quarter	970	480	22	19	**1200**	**570**	**26**	**24**
2nd Quarter	1050	480	24	19	**1260**	**570**	**28**	**24**
3rd Quarter	1180	480	26	19	**1340**	**570**	**30**	**24**
4th Quarter	Not admissible	Not admissible	Not admissible	Not admissible	**1370**	**570**	**31**	**24**
Unranked	Not admissible	Not admissible	Not admissible	Not admissible	**1370**	**570**	**31**	**24**

For developing these proposed criteria, an emphasis was placed on the performance on these criteria by students who were successful in earning engineering degrees at UH. With the increasing number of high-quality high schools which do not report a class rank, we wanted to add a row for students from such non-ranking schools. Since we were adding criteria for these students, we decided that it would be more consistent to apply the same standards for students in the lowest quarter. We have had a very small number of students who earned degrees when finishing in the lower half of their class, and therefore the board scores for such students should be quite high to indicate a reasonable prospect for success. It is expected that such successful students would come almost exclusively from very competitive high schools. Almost every student who graduated with an identified ranking in the lowest quarter came from such high schools.

Our analysis of the student graduation numbers indicated that roughly one student in three who was admitted and enrolled in engineering as an FTIC student earned an engineering degree. From this, and from the data on our engineering graduates, we have the need for raising the admissions standards dramatically. We would note that, to the best of my knowledge, these standards have not changed for at least 20 years. The average SATT score, or its ACT equivalent, for our engineering graduates is about 1220. The ACT scores used here are taken from the SATT scores and the concordance table available online.

Transfer Admissions

Based on the same data for admitted students and engineering graduates, we would recommend that the transfer admissions criteria for engineering degree programs be adjusted as follows. The current criteria and the proposed criteria are listed in the table below. These criteria would be for transfer students who have earned more than 15 semester credit hours.

Area	Current Minimum GPA	Proposed Minimum GPA
All college level work attempted	2.5	3.00
All calculus courses and math courses with calculus prerequisites attempted	2.5	3.00
All college level chemistry, biology, geology, and calculus-based physics courses attempted	2.5	3.00
All college level English courses attempted	2.5	2.50
All college level engineering courses attempted	2.5	3.00

To be admitted, students must have attempted at least one college level English course, at least one calculus course, and at least one college level science course in the areas listed. In the calculation of each GPA, all attempts count, even if repeated.

For developing these proposed criteria, an emphasis was placed on the performance on these criteria by students who were successful in earning engineering degrees at UH. We have added two more categories of science classes, biology and geology, since these courses are now required for our biomedical engineering students and petroleum engineering students.

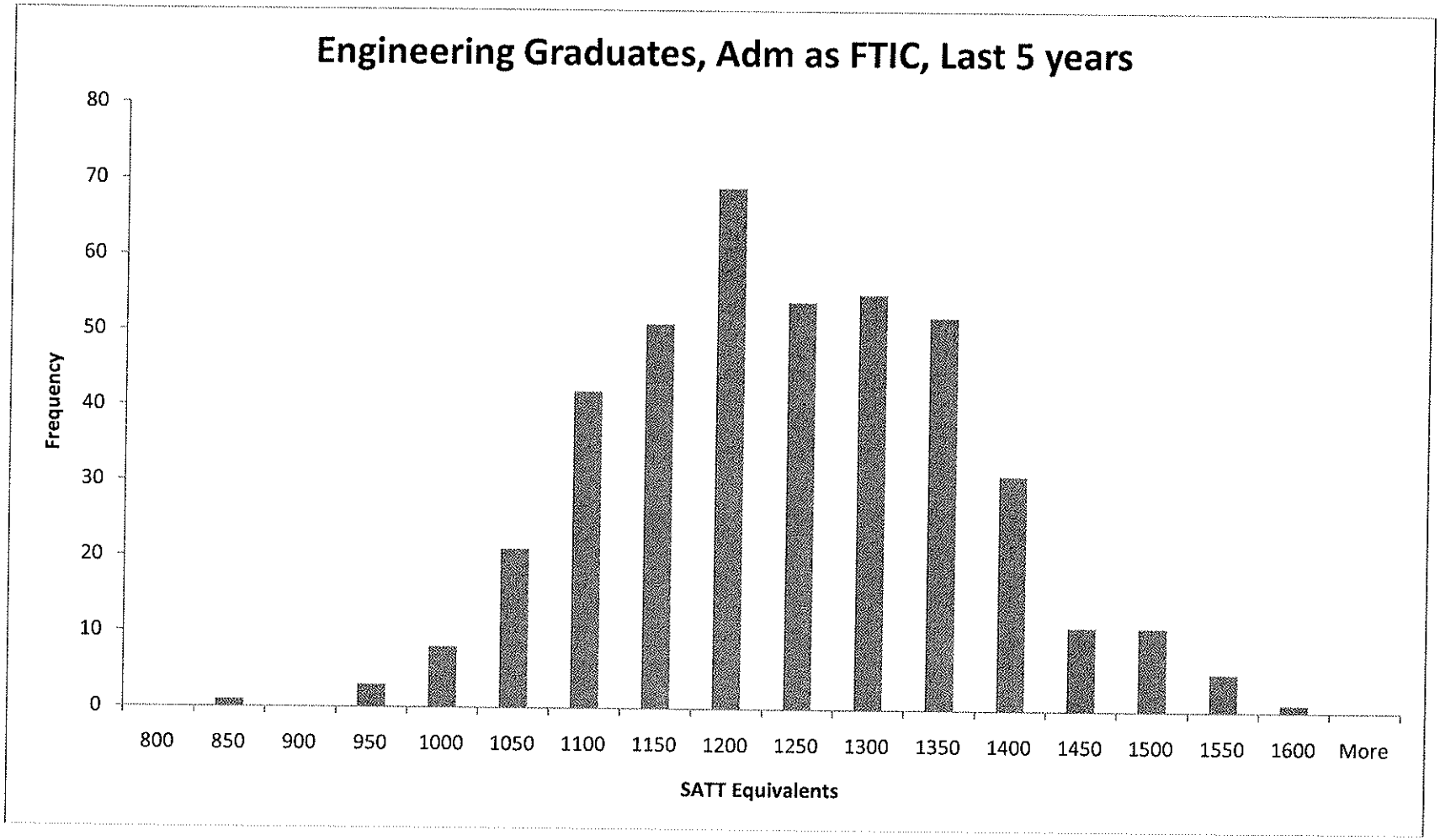
Our analysis of the student graduation numbers indicated that roughly one student in three who was admitted and enrolled in engineering as a transfer student earned an engineering degree. From this, and from the data on our engineering graduates, we have the need for raising the admissions standards dramatically. These standards were last raised about 10 years ago. Before that, the GPA's were set at 2.25. The approach using individual GPA's was first used in engineering in about 1995.

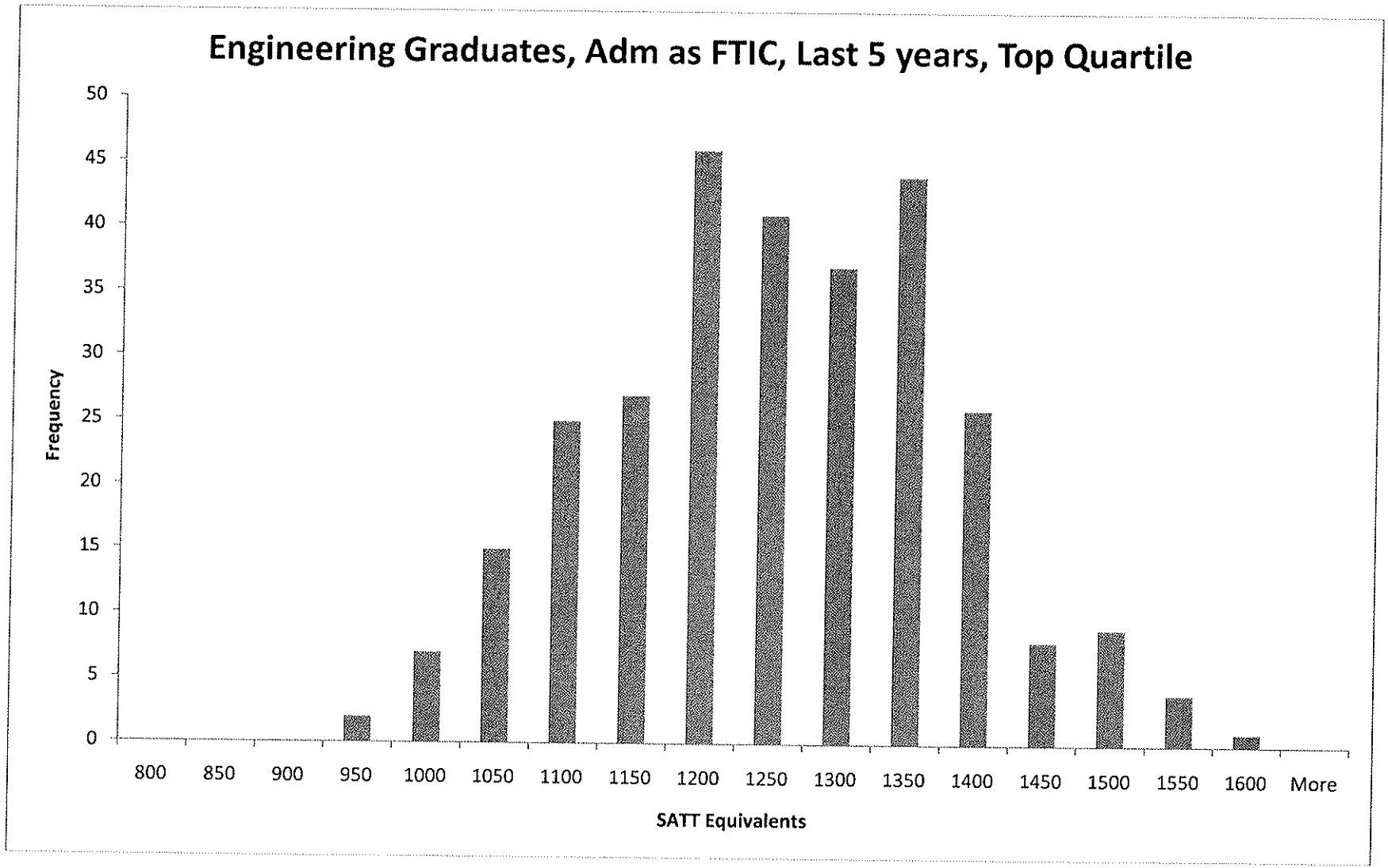
Implementing these changes in transfer criteria would result in about one in three of our recent graduates not being admitted directly as a transfer student. The standards proposed for FTIC students would result in about one in two of our recent graduates not being admitted directly. This is one reason why it will be important to implement a different set of admission criteria for the proposed ENGR major, to allow such potentially successful students to have a path to be able to get into a degree program in engineering. The proposal I would make is that students who do not make these admissions criteria should be admitted to ENGR, if they meet the entrance requirements for UH general admissions.

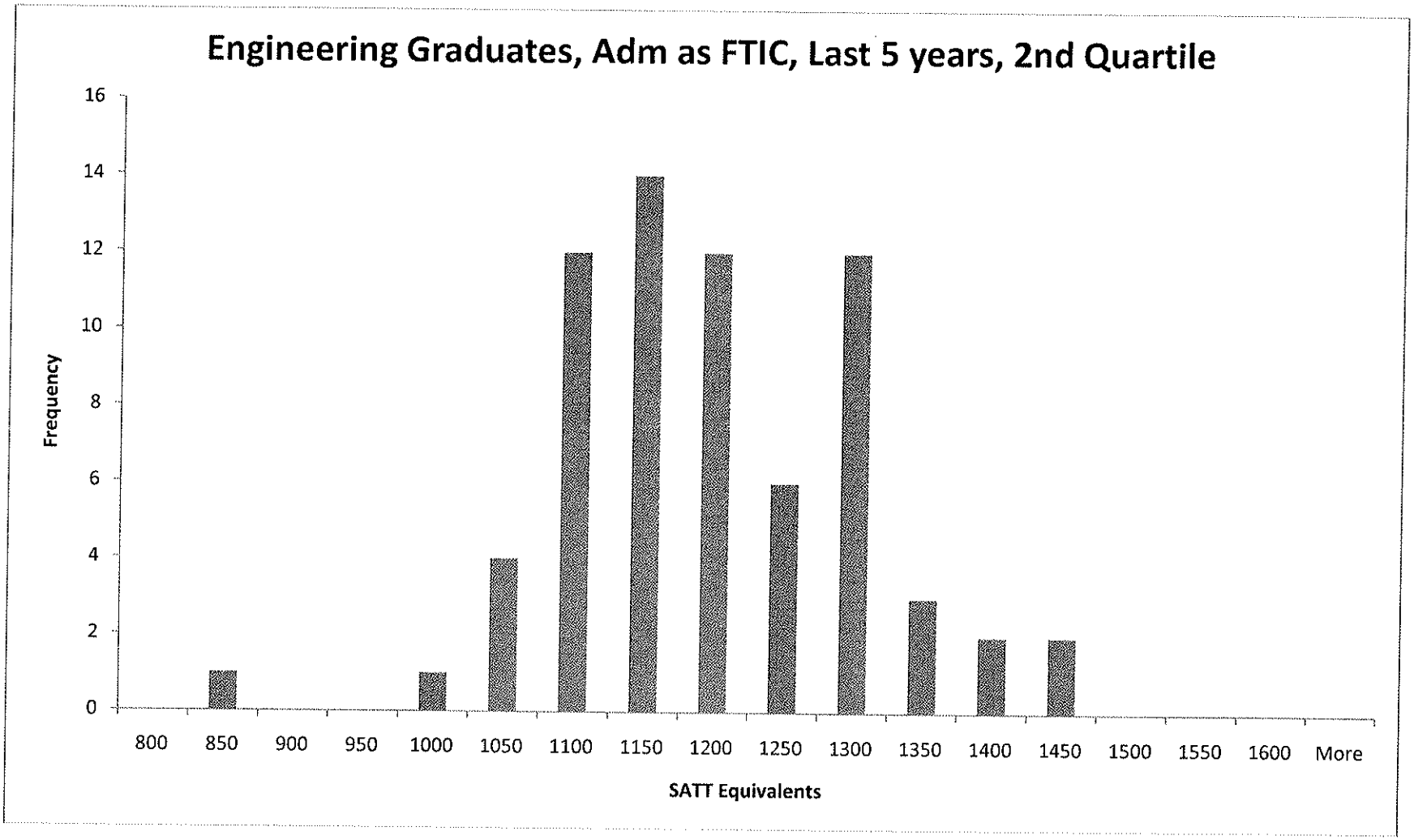
The following table shows the average and standard deviation in the SATT score, or equivalent, for students who graduated from engineering and were admitted as FTIC freshmen. By equivalent, I mean that the students who took the ACT had their scores converted to their SATT equivalent.

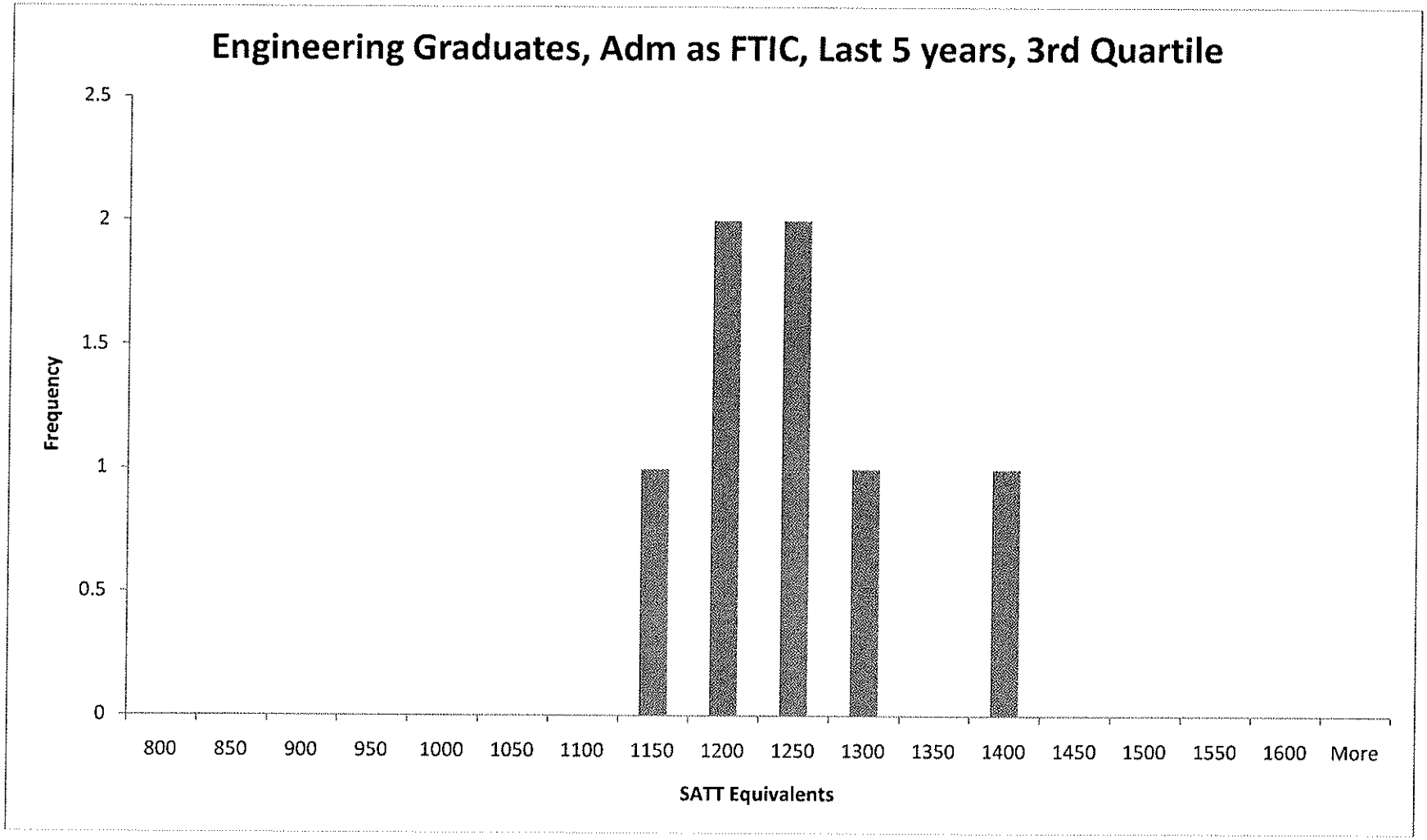
Program	SATVERB_F	SATMATH_F	SATCOMP_F	CAPW_ACTENG	CAPW_ACTMATH	CAPW_ACTCOMP	MAX SATT
BSBE Ave.	626	678	1304	26	29	27	1310
BSBE STD.	74	48	100	5	4	3	97
CHE Ave.	573	653	1227	24	28	26	1224
CHE STD	81	72	126	5	4	4	130
Civil Ave.	568	617	1184	23	27	25	1191
Civil STD	73	68	127	6	4	4	125
CpE Ave.	571	636	1207	24	26	25	1210
CpE STD	55	61	80	4	2	2	76
EE Ave.	558	656	1214	23	28	25	1216
EE STD	78	68	123	5	4	3	124
Ind. Ave	555	593	1148	21	26	24	1161
Ind. STD	70	79	126	3	3	3	117
ME Ave.	586	649	1235	26	29	27	1242
ME STD	74	57	112	4	4	4	114
Coll. Ave	573	646	1219	24	28	26	1223
Coll. STD	77	69	123	5	4	4	123

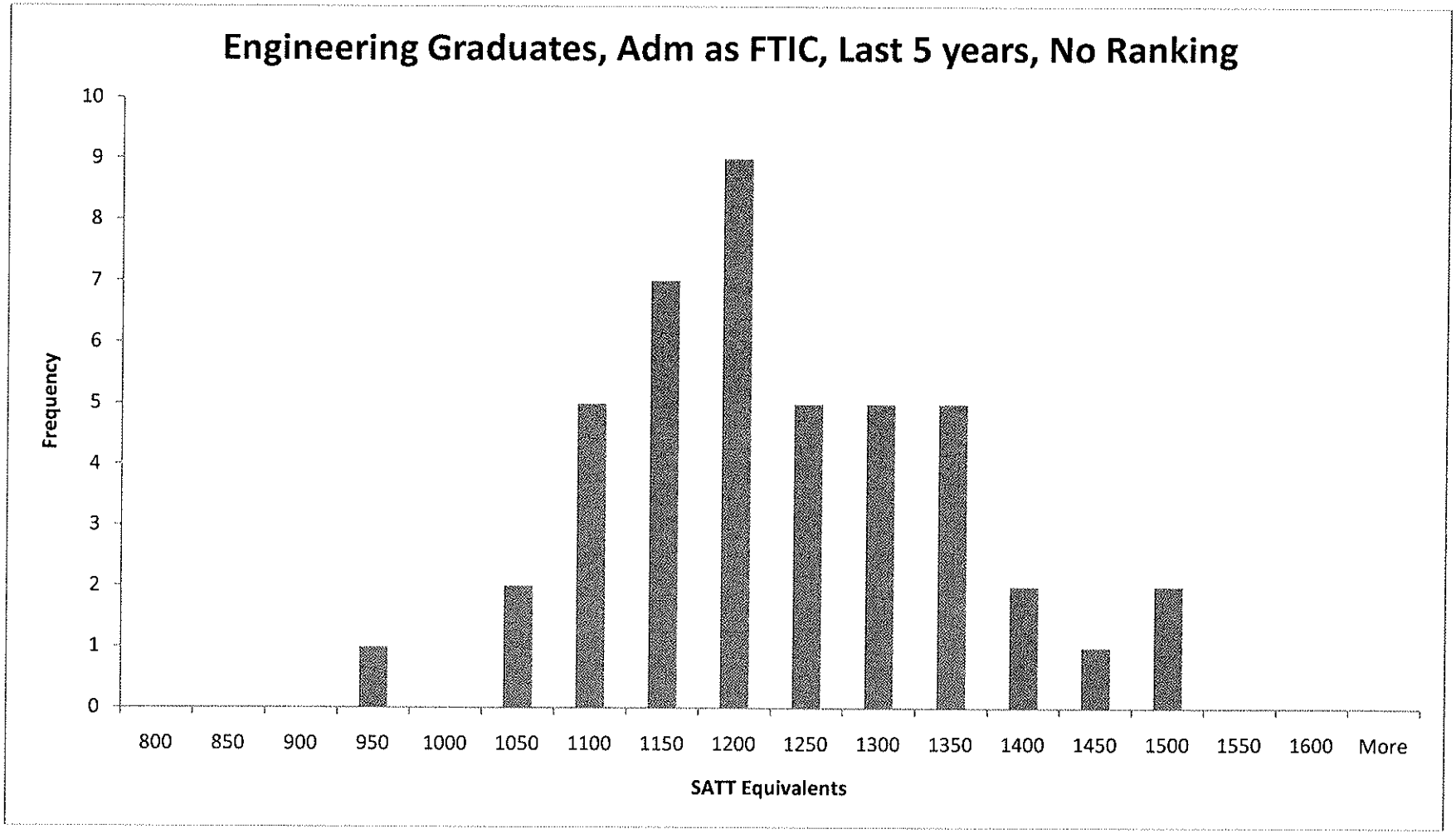
The following histograms shows the SATT score, or equivalent, for students who graduated from engineering and were admitted as FTIC freshmen. By equivalent, I mean that the students who took the ACT had their scores converted to their SATT equivalent. The first histogram is for all graduates admitted this way. The later histograms are by admission quartile.



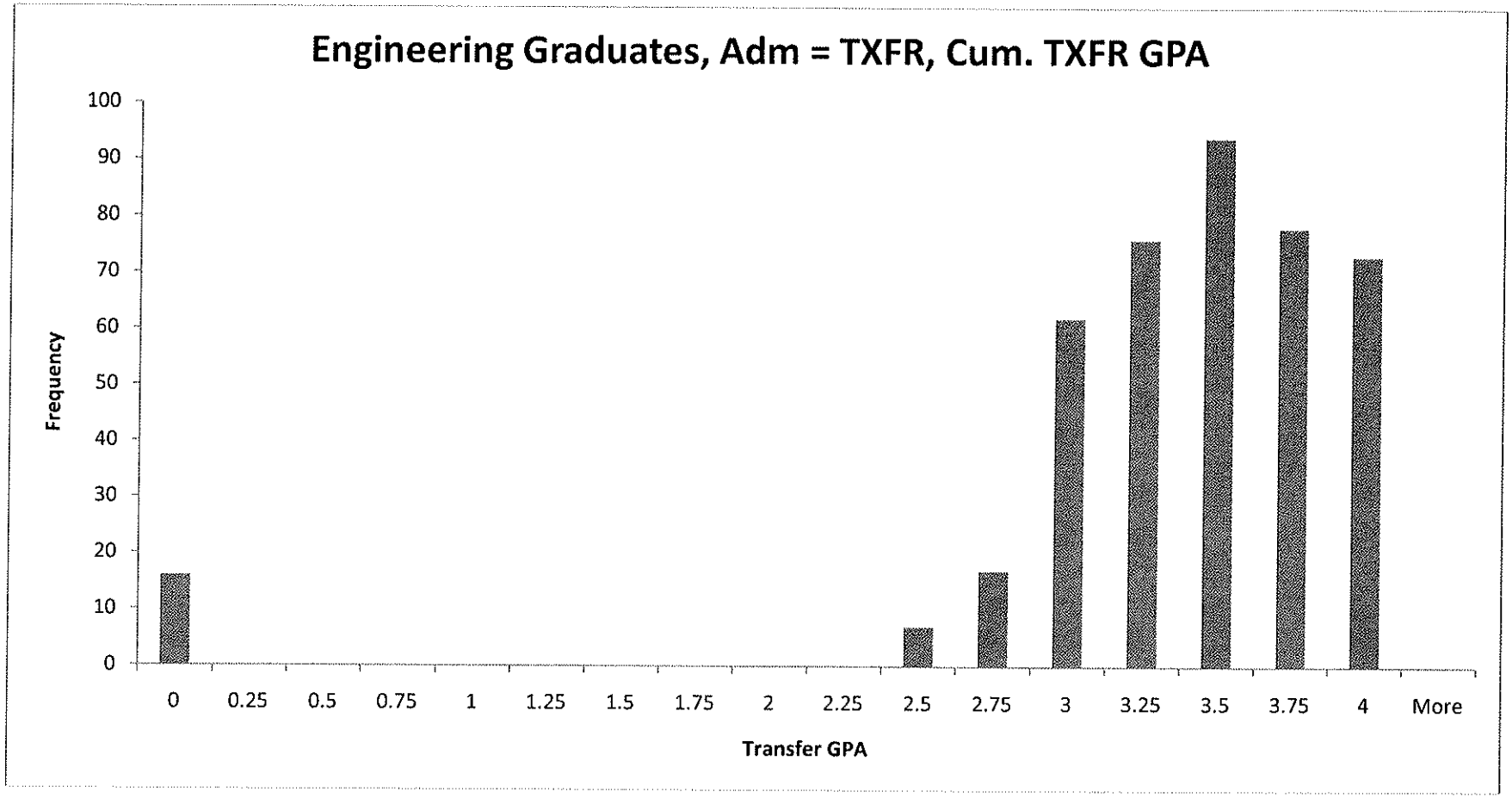

Engineering Graduates, Adm as FTIC, Last 5 years, Top Quartile
Frequency
0
5
10
15
20
25
30
35
40
45
50
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
More
SATT Equivalents

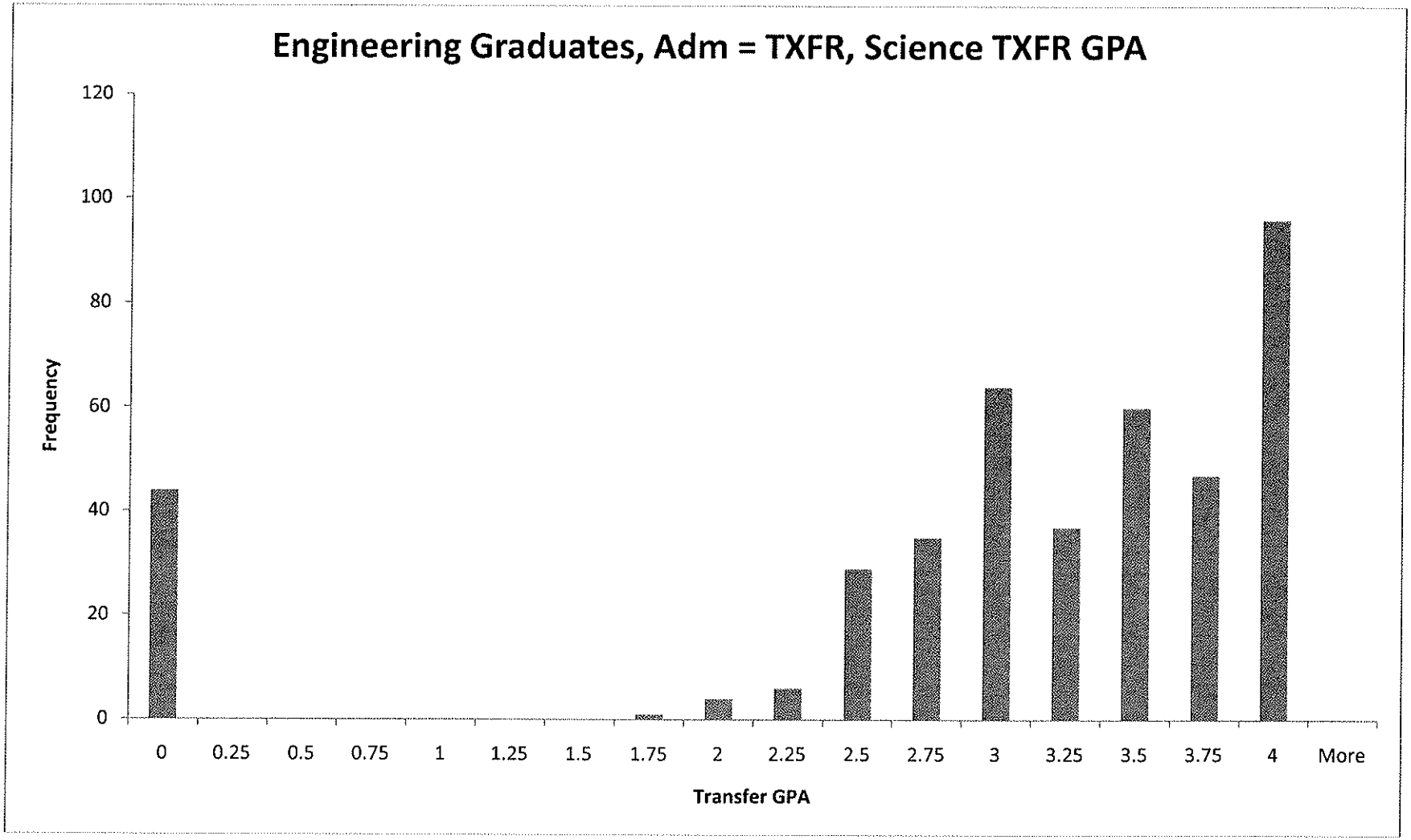

Engineering Graduates, Adm as FTIC, Last 5 years, 2nd Quartile
Frequency
16
14
12
10
8
6
4
2
0
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
More
SATT Equivalents

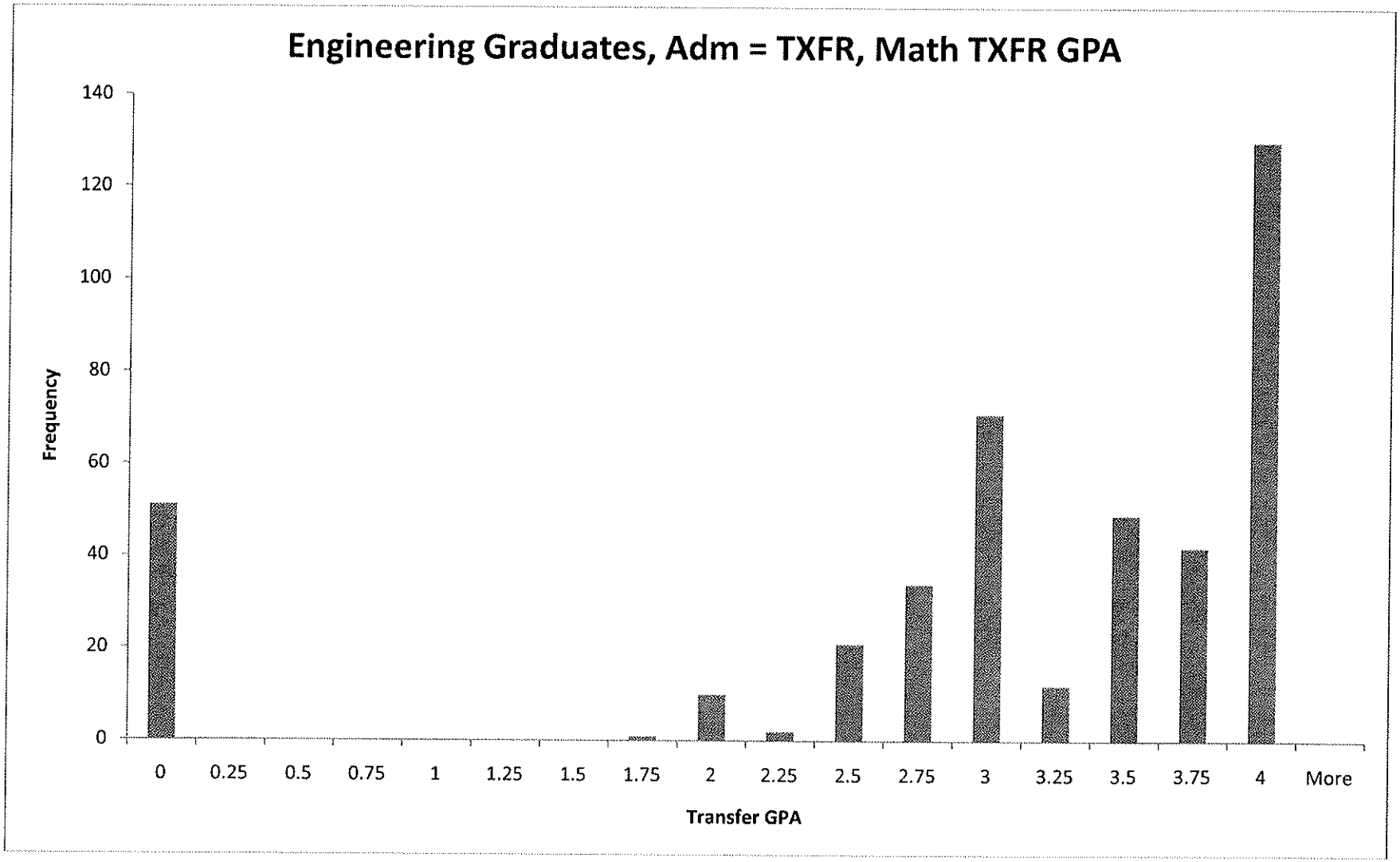

Engineering Graduates, Adm as FTIC, Last 5 years, 3rd Quartile
Frequency
2.5
2
1.5
1
0.5
0
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
More
SATT Equivalents

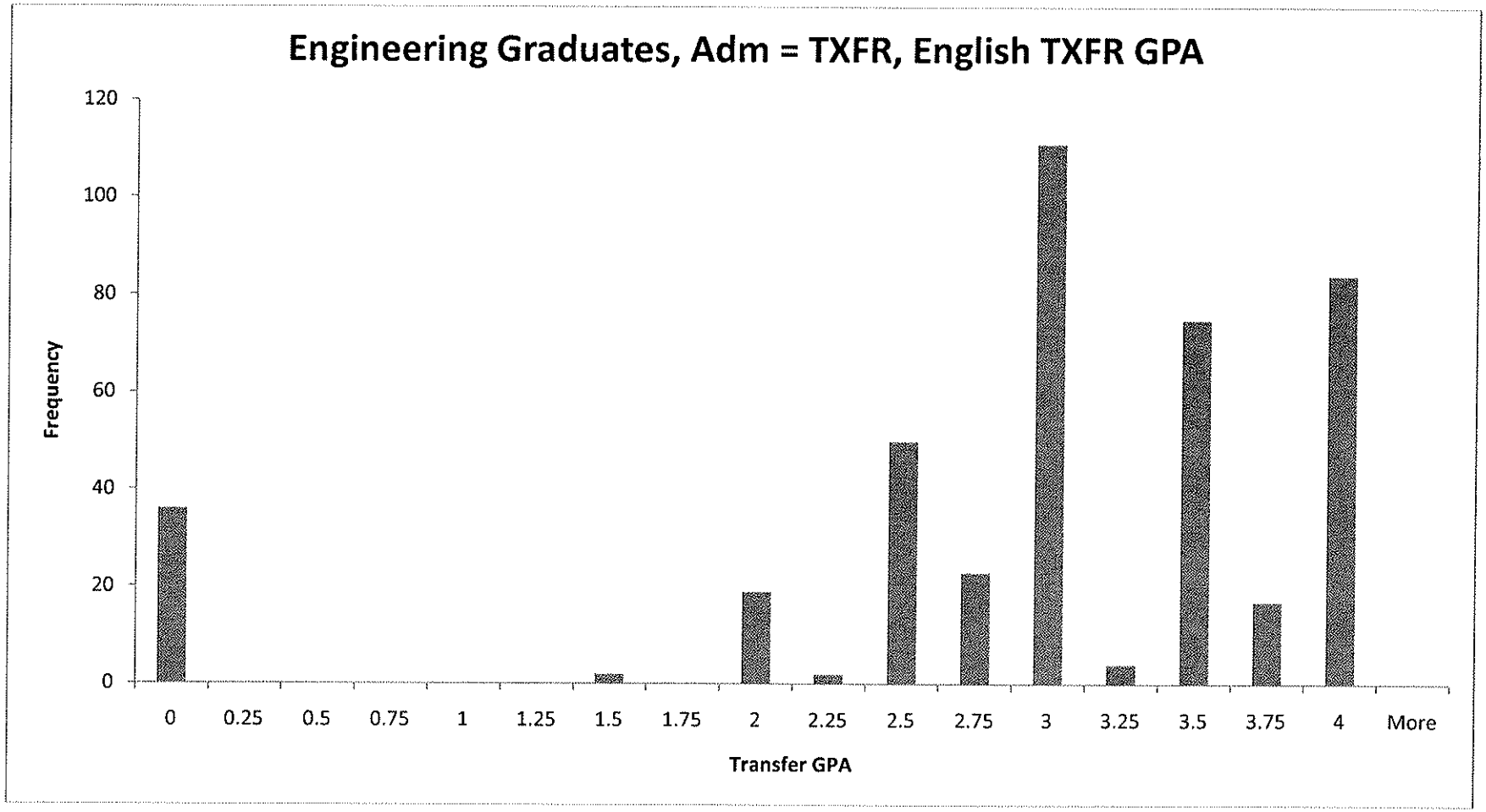

Engineering Graduates, Adm as FTIC, Last 5 years, No Ranking
Frequency
0
1
2
3
4
5
6
7
8
9
10
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
More
SATT Equivalents

The following histograms show the transfer GPAs of Engineering graduates over the past five years. The first one is for cumulative GPA, and the following histograms for science, mathematics, and English courses.




Engineering Graduates, Adm = TXFR, Science TXFR GPA
Frequency
120
100
80
60
40
20
0
0
0.25
0.5
0.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
3
3.25
3.5
3.75
4
More
Transfer GPA


Engineering Graduates, Adm = TXFR, Math TXFR GPA
Frequency
140
120
100
80
60
40
20
0
0
0.25
0.5
0.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
3
3.25
3.5
3.75
4
More
Transfer GPA


Engineering Graduates, Adm = TXFR, English TXFR GPA
Frequency
120
100
80
60
40
20
0
0
0.25
0.5
0.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
3
3.25
3.5
3.75
4
More
Transfer GPA

The following table shows the expected effect of raising the threshold for transfer GPAs for the four major categories, overall, science, mathematics, and English GPAs. The current threshold is 2.50. If we raise it to 2.75, 31% of the students who graduated would not be admitted directly. If we raise it to 3.00, 37% of the students who graduated would not be admitted directly, and for 3.25 it would be 75%. Because of the big jump at 3.25, we propose the 3.00 threshold for all but English courses.

	Would Graduate with Threshold = 3.00	**Would Graduate with Threshold = 3.25**	**Would Graduate with Threshold = 2.75**	**Would Graduate with Threshold = 2.50**
	0.36	0.14	0.39	0.57
% lost graduates apparent	64%	86%	61%	43%
% lost graduates real	**37%**	**75%**	**31%**	**0%**