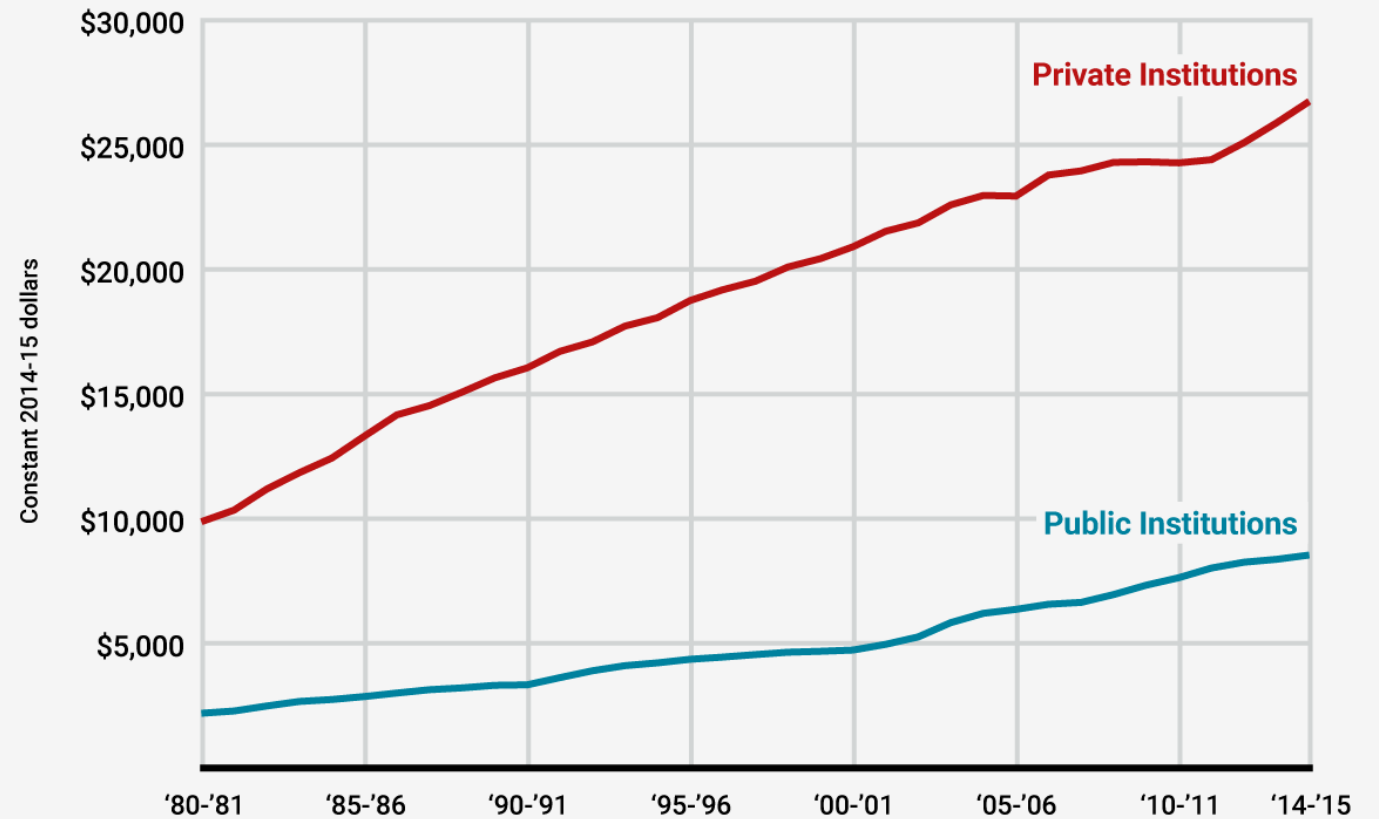


What's Driving College Costs Higher?

KEVIN STERN

Objective

AVERAGE COLLEGE TUITION SINCE 1980



SOURCE: National Center for Education Statistics

BUSINESS INSIDER

Data Source

“Don't Give Up on a College Because of Its Sticker Price”

“Find money for college!”

“What will college really cost?”



“Find out how much colleges expect you to pay”

“Financing your college education”

Full List of Features

ACT

SAT Math

SAT Reading

Admission Rate

Area Population

Average Age

Average Financial Need Award

Average GPA

Average Indebtness

Campus Size

Is Freshman Housing Guaranteed?

Percent of Students who Got Financial Need

Institution Type (Private vs. Public)

Number of Grad Students

Number of Undergrad Students

Percent of International Students

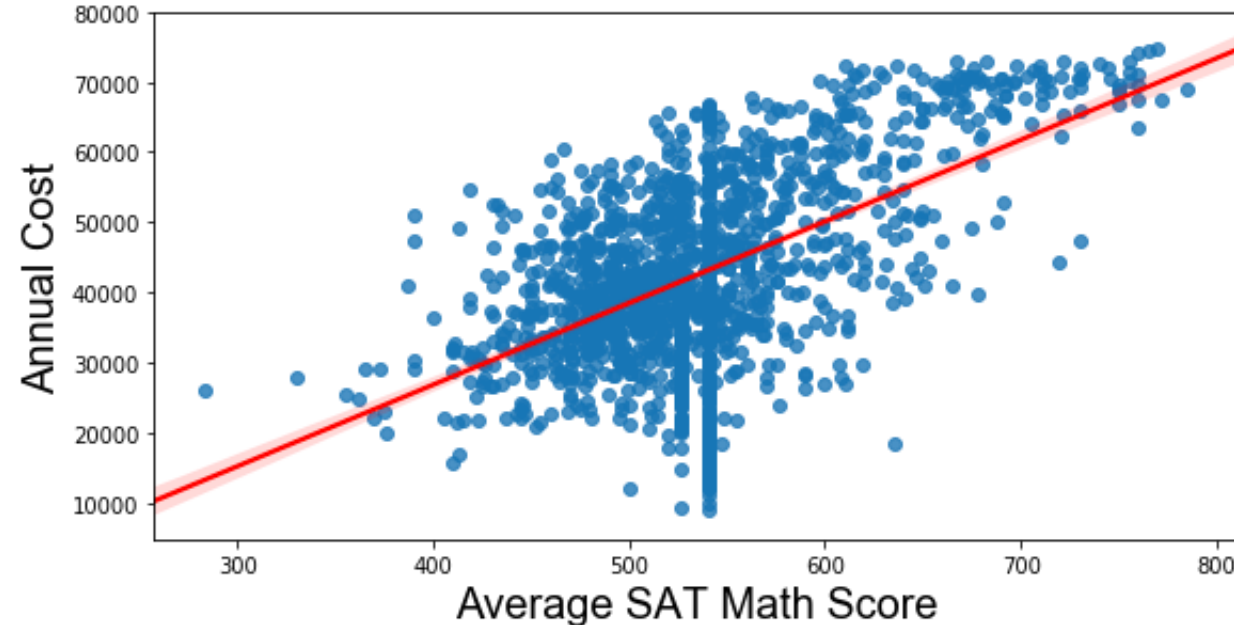
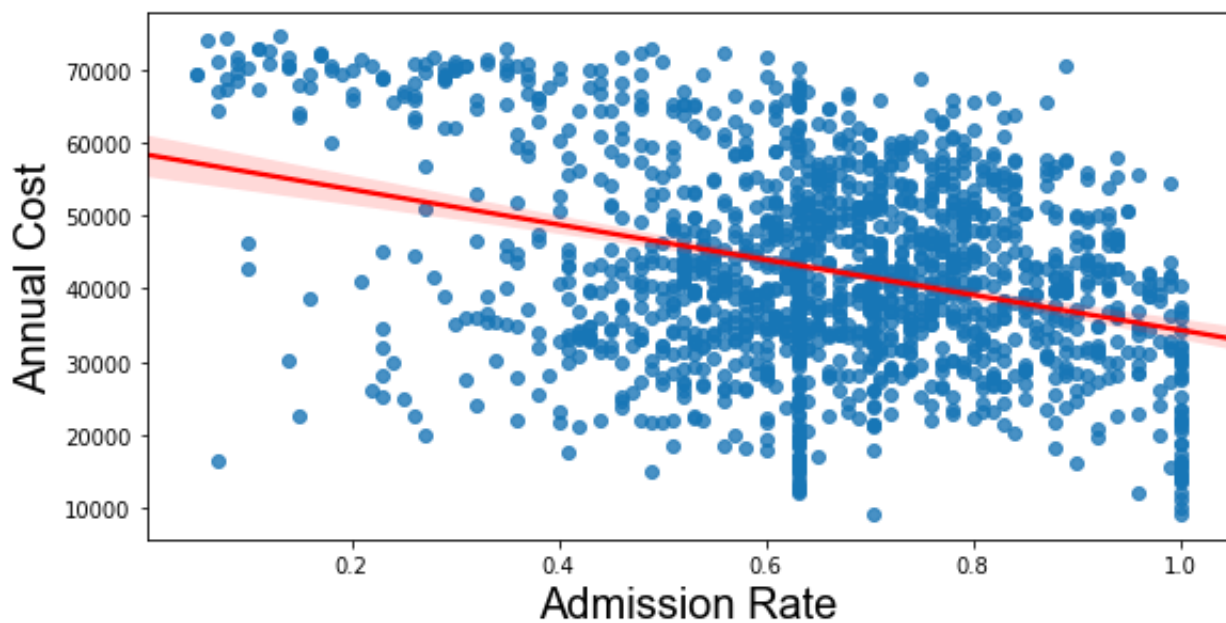
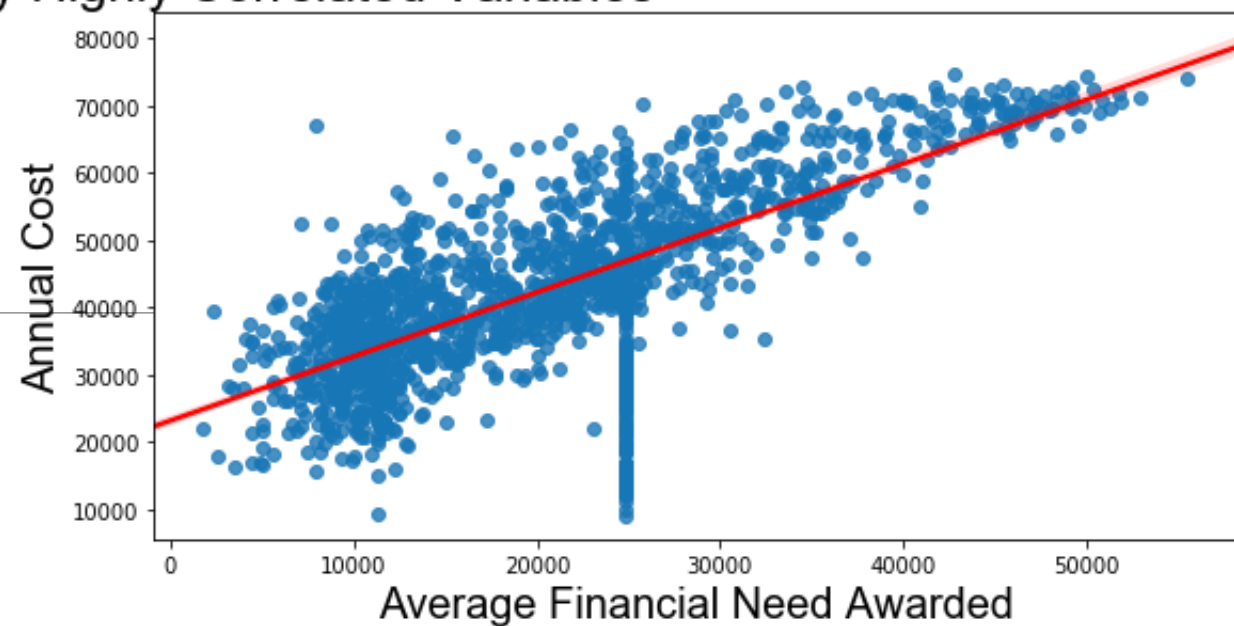
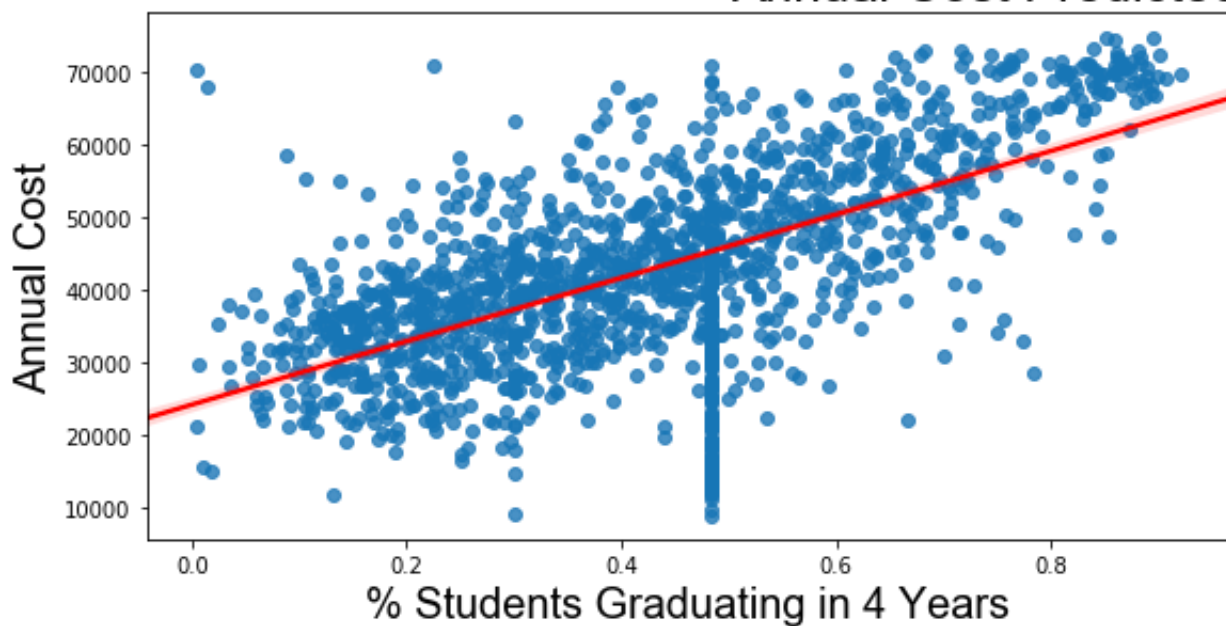
Graduation Rate

Percent of Students with Loans

Percent of Undergrad Women

Average Class Size

Annual Cost Predicted by Highly Correlated Variables



Full List of Features

ACT	Percent of Students who Got Financial Need
SAT Math	Institution Type (Private vs. Public)
SAT Reading	Number of Grad Students
Admission Rate	Number of Undergrad Students
Area Population	Percent of International Students
Average Age	Graduation Rate
Average Financial Need Award	Percent of Students with Loans
Average GPA	Percent of Undergrad Women
Average Indebtness	Average Class Size
Campus Size	
Is Freshman Housing Guaranteed?	

$$\underline{R}^2 = 0.620$$

$$CV = 0.518$$

Final List of Features

ACT

SAT Reading
Admission Rate

Average Age
Average Financial Need Award

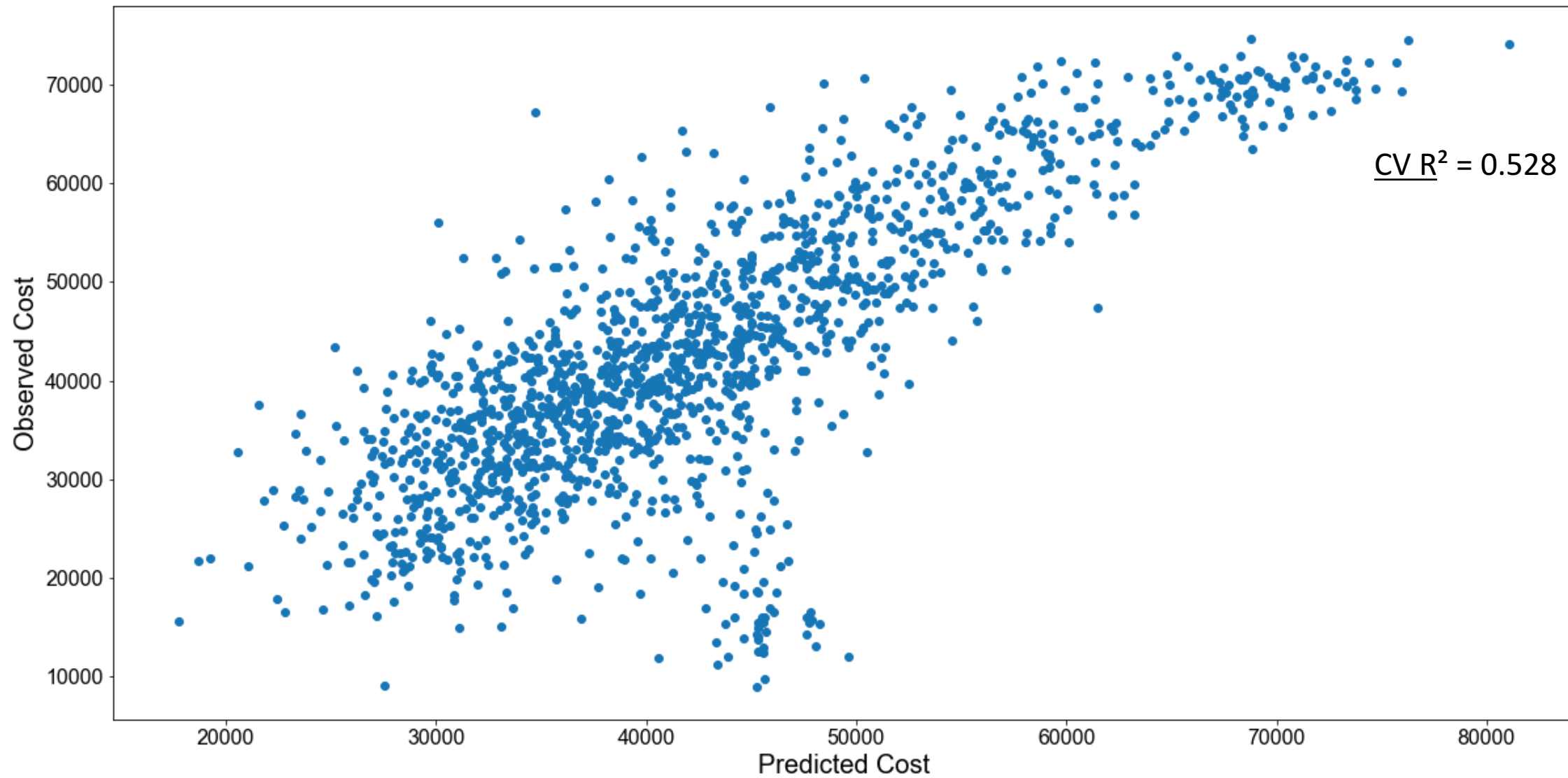
Average Indebtness

Number of Undergrad Students
Percent of International Students
Graduation Rate

Percent of Undergrad Women
Average Class Size

$\underline{R}^2 = 0.619$
 $CV = 0.528$

Predicted vs Observed Cost



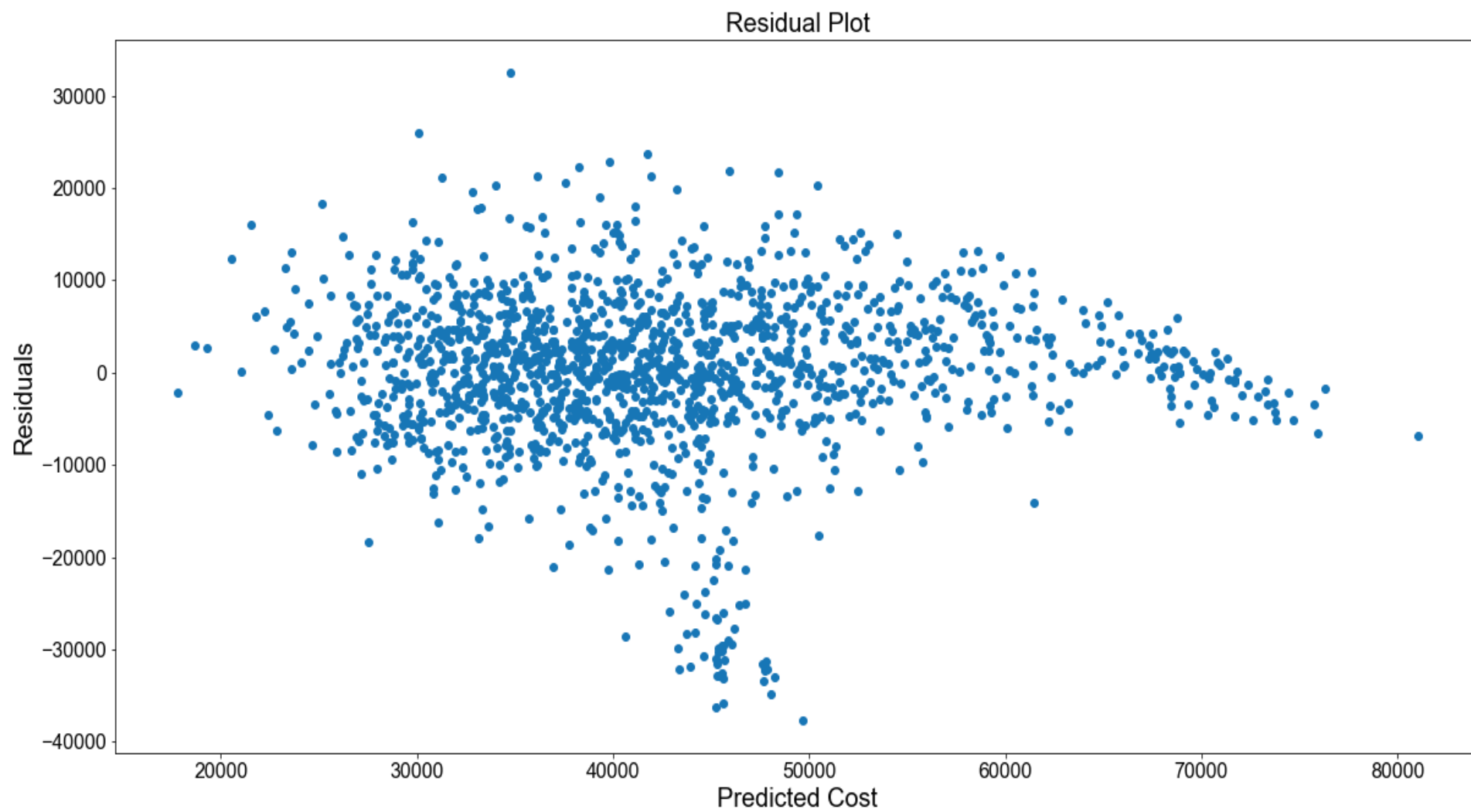
Key Features

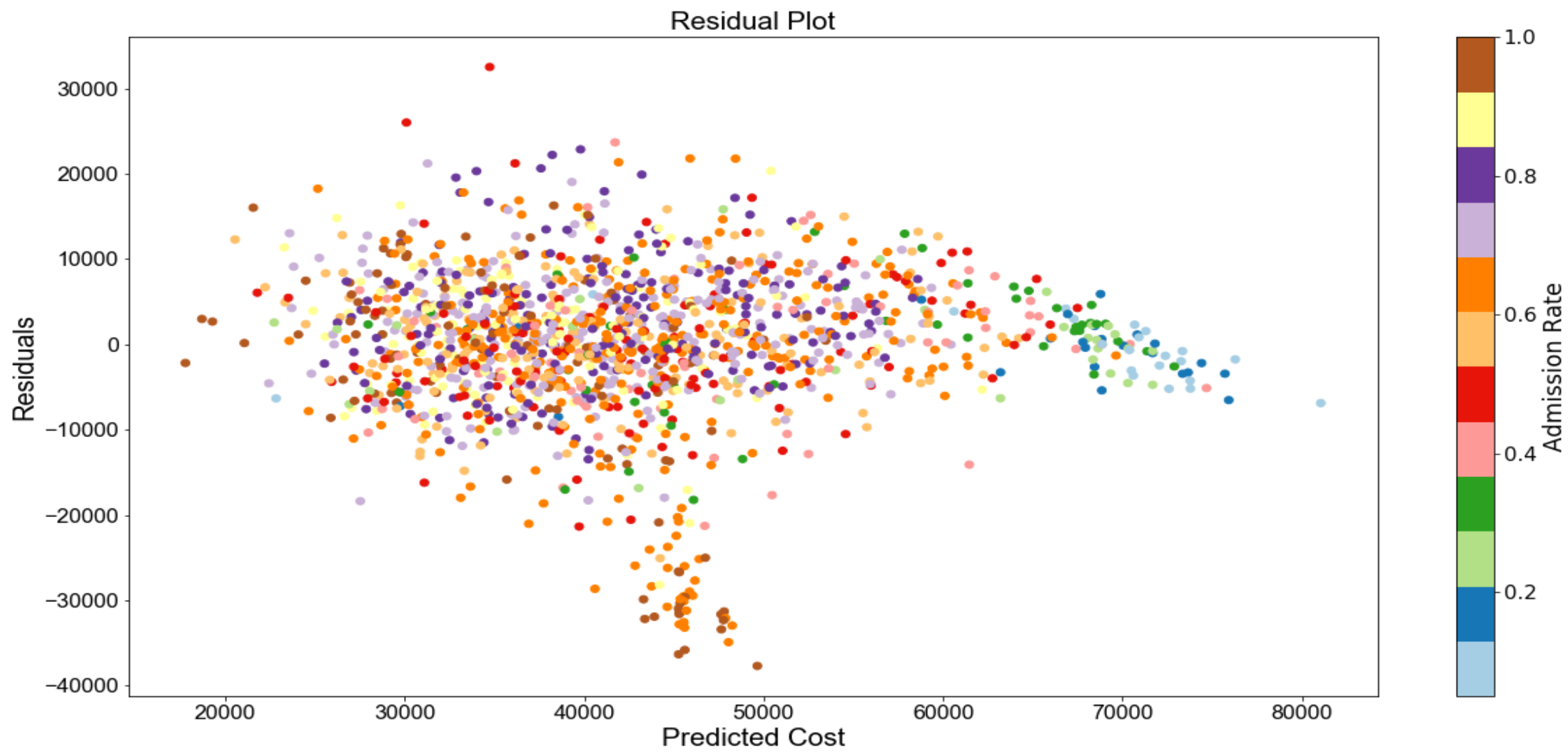
Admission Rate

% International Students

% Undergrad Women

% Graduating





totalCost	predCost	name	absResid	admissionRate	numUndergrad
8950	45267.778105	Yeshiva D'Monsey Rabbinical College	36317.778105	1.0	68.0
9800	45611.451293	Talmudical Institute of Upstate New York	35811.451293	1.0	22.0
14250	47649.652763	Torah Temimah Talmudical Seminary	33399.652763	1.0	170.0
15450	47767.723977	Rabbinical Academy Mesivta Rabbi Chaim Berlin	32317.723977	1.0	146.0
11200	43383.466965	Central Yeshiva Tomchei Tmimim-Lubavitch	32183.466965	1.0	582.0
15800	47758.693986	Yeshiva Derech Chaim	31958.693986	1.0	95.0
12000	43915.777617	Yehiva Gedolah of Greater Detroit	31915.777617	1.0	57.0
16000	47631.769840	Yeshiva Karlin Stolin Rabbinical Institute	31631.769840	1.0	69.0

Takeaways

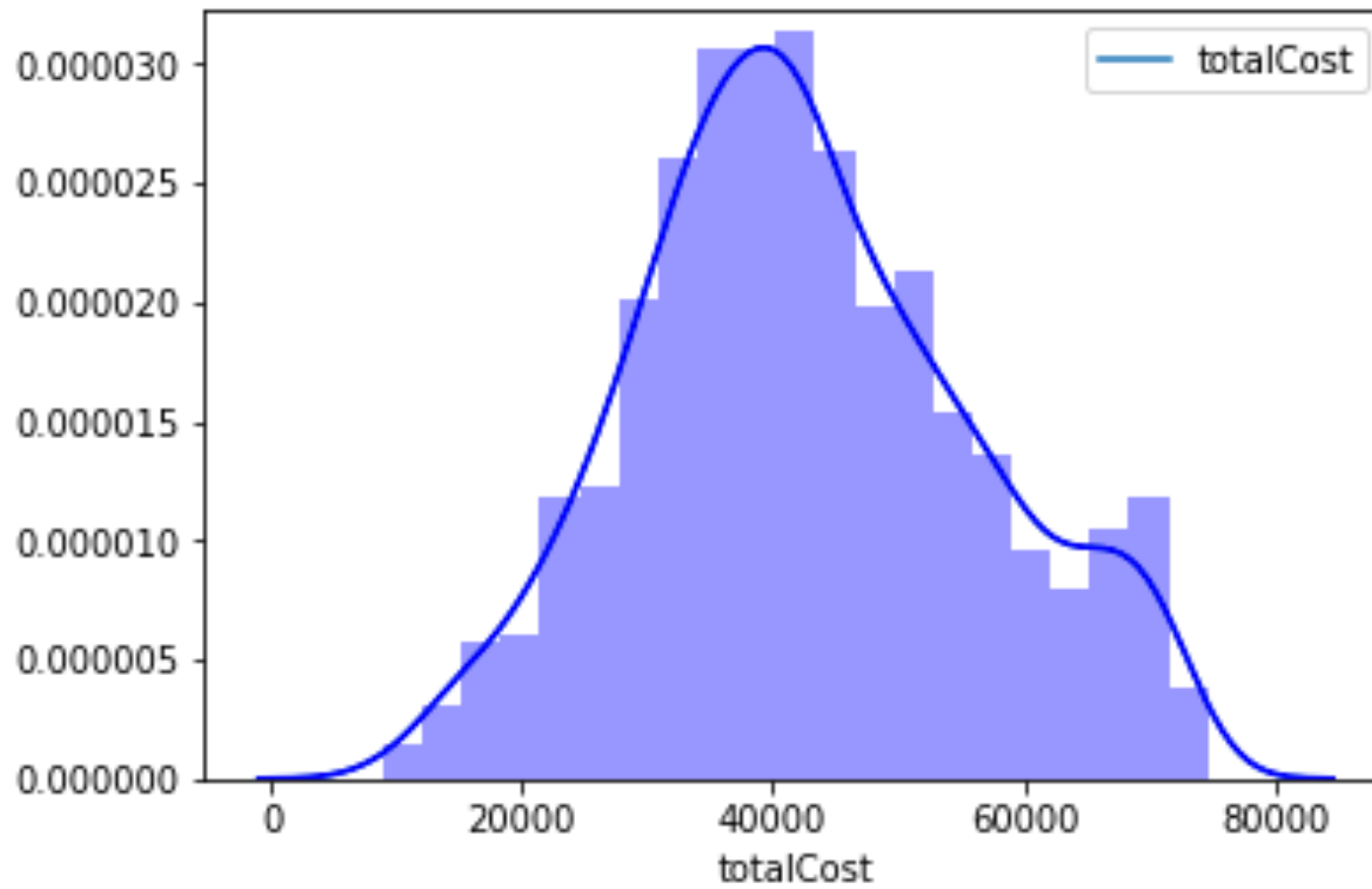
What else could be contributing to the cost of tuition?

Next steps

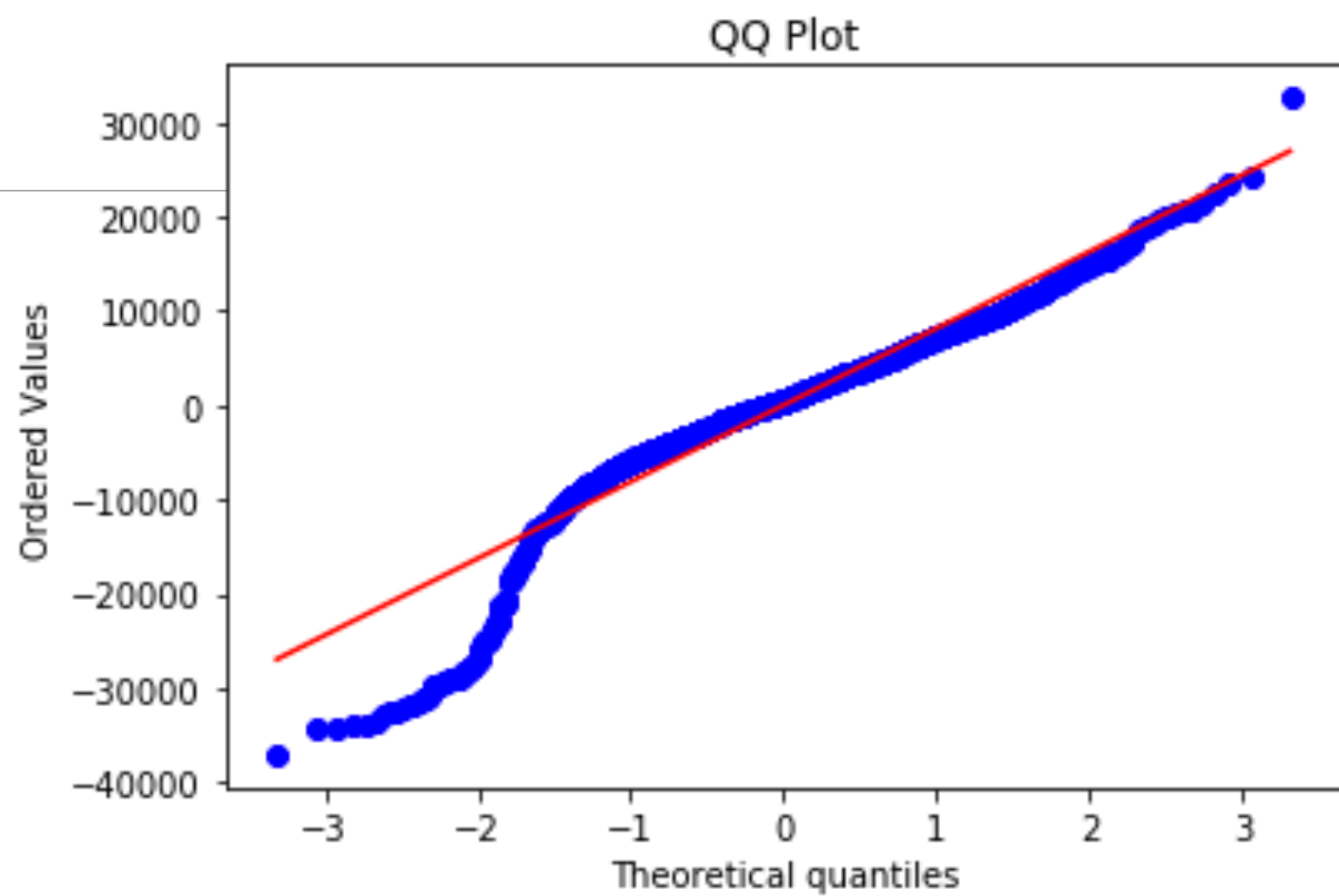
Questions?

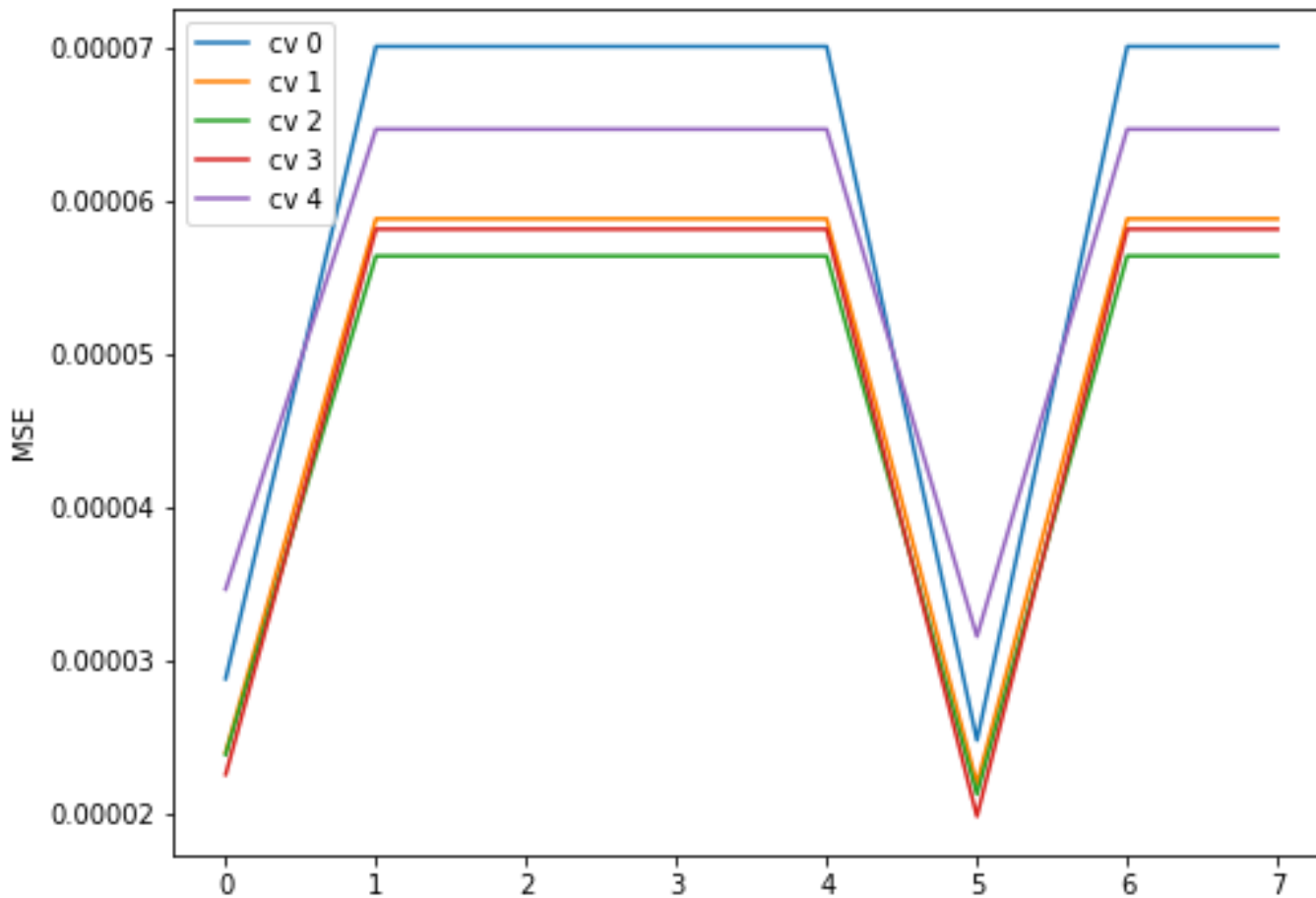
Technical Appendix

A vertical line is positioned to the right of the title, extending from the top of the text area to the bottom of the page. At the very bottom of the page, there is a solid orange horizontal bar that spans the entire width.



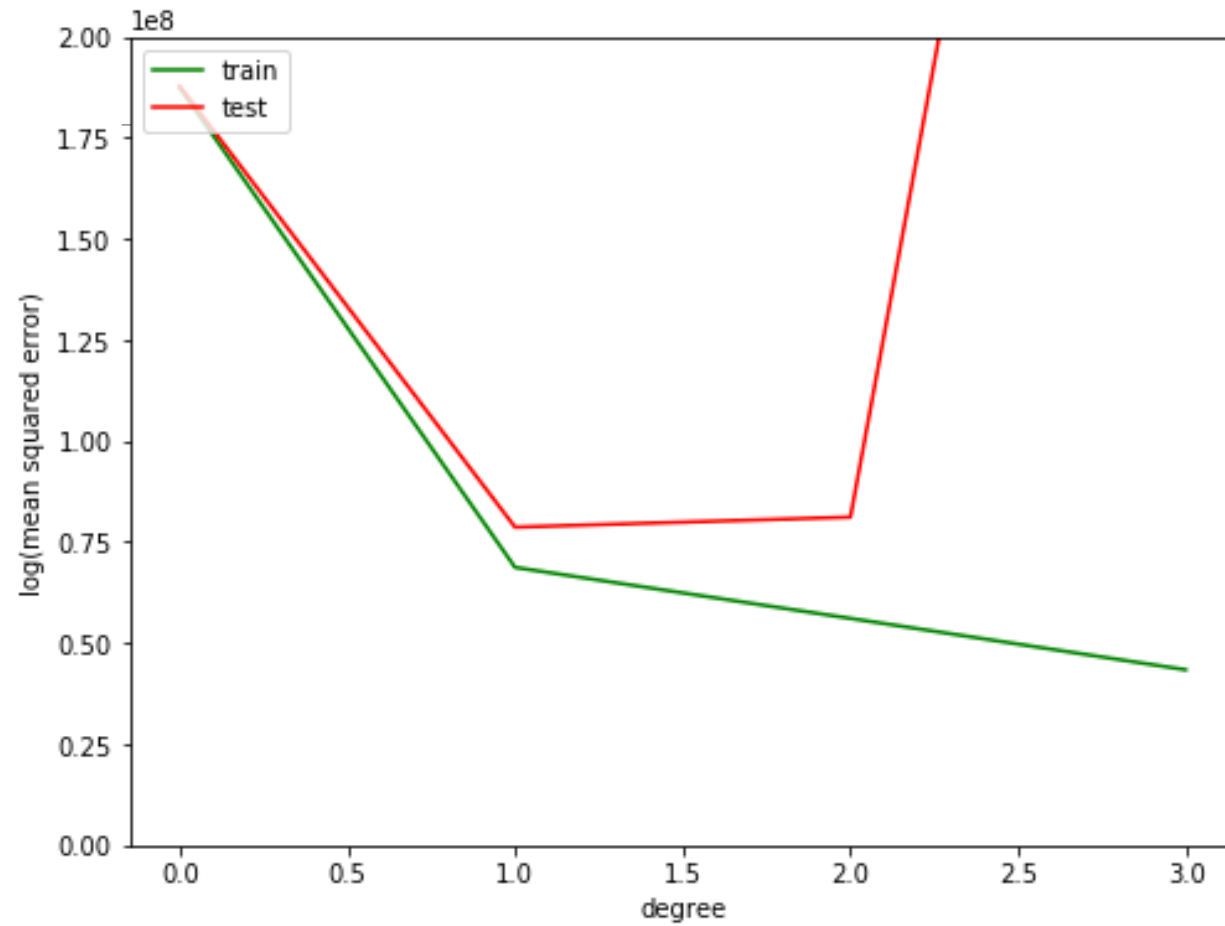
Distribution of Tuition Cost





List of alphas = $[1e-5, 1e-4, 1e-3, 1e-2, 1e-1, 0, 1, 100]$

Alpha Selection for Final Set of Features through Lasso Regularization



Polynomial Degree Selection

	totalCost	predCost	name	absResid
988	68860	68865.420252	Bryn Mawr College	5.420252
1536	26061	26069.389588	University of Wisconsin - Platteville	8.389588
517	36320	36310.475152	Chowan University	9.524848
1665	35006	35021.531898	Saginaw Valley State University	15.531898
448	70443	70421.265995	George Washington University	21.734005
1946	49410	49386.932846	Alma College	23.067154
1373	44500	44523.206086	Corban University	23.206086
1427	68901	68877.647451	California Institute of Technology	23.352549
445	29396	29366.569944	Georgia Gwinnett College	29.430056
335	36188	36157.088023	Shorter University	30.911977

Final Model Coefficients

	coef
Intercept	5000.9809
ACT	800.6842
SATReading	-12.6183
admissionRate	-4540.5440
areaPop	0.0006
avgAge	-176.0356
avgAward	0.6724
avgIndebtness	0.2312
numUndergrad	0.2465
pctInternationalStudents	1.191e+04
pctStudentsGraduatingin4Yrs	1.029e+04
undergradWomen	7574.5878
avgClassSize	71.5108
Omnibus:	331.451
Durbin-Watson:	1.510
Prob(Omnibus):	0.000
Jarque-Bera (JB):	983.015
Skew:	-1.101
Prob(JB):	3.47e-214
Kurtosis:	6.269
Cond. No.	2.29e+07

SAMPLE DATA

```
{'nearestAirport': u'20 mile(s) from campus in Lexington',  
'freshmanHousingGuaranteed': u'Freshmen are guaranteed housing', 'pctWithLoans':  
u'70%', 'numGrad': u'2,517', 'SATMath': u'483 average ', 'ACT': u'22 average ',  
'classSize': u'2-9 students: 20% of classes', 'pctInternationalStudents': u'1.6% from 44  
countries', 'nearestTrain': u'\xa0', 'id': u'944', 'totalCost': [u'In-  
state: 22,014', u'Out-of-state:22,014', u'Out-of-state:31,792'], 'tuitionCost': [u'In-  
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u' 34,358', 'mascot': u'Colonel', 'bookCost': [u'34,358', 'mascot': u'Colonel', 'bookCost': [u'1,  
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