

What's behind the sticker price of private college tuition and fees?

Final Project for Metis' Linear Regression and Web Scraping Module

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Introduction

- **Objective** - Understand what features of private non-profit institutions most influence the published price of their tuition and fees
- **Goal** - Help those involved in the decision-making process about higher education choices make more informed decisions

Methodology

Data Collection

Scraped data about **private non-profit colleges/universities offering Bachelor's degrees** from the National Center for Education Statistics (NCES)

Data Preparation

Cleaned, engineered new features and performed EDA on scraped data

Ended up with **1322 schools** and **21 features** of each school

Modeling

Round 1 - ***without* financial aid** as a feature
Round 2 - ***with* financial aid** as a feature

Models:

- Linear regression
- LassoCV regression
- Polynomial regression

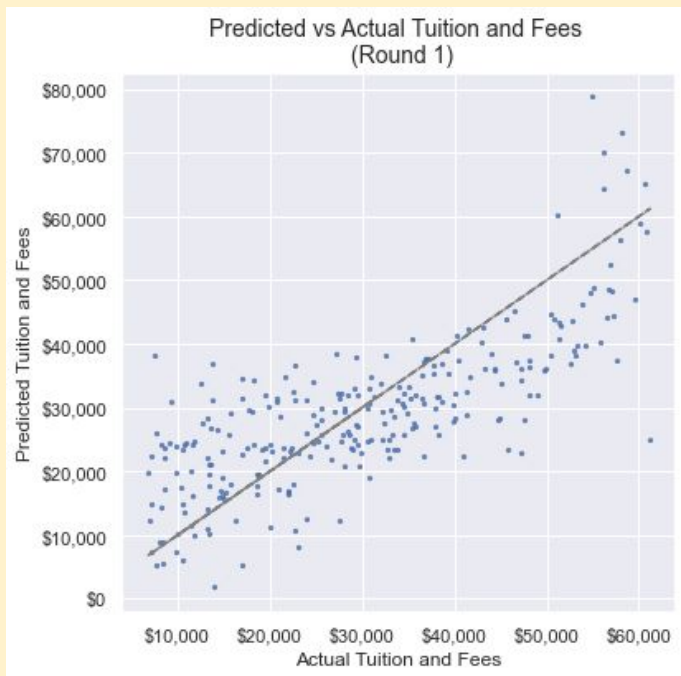
Validation: cross-validation

Evaluation metric: RMSE

Results

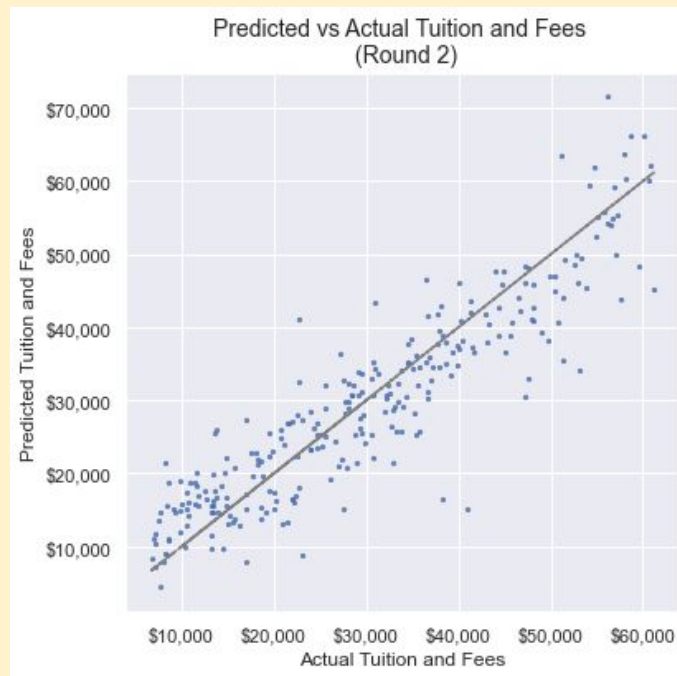
Round 1 - Modeling *without* financial aid

RMSE of LassoCV model: 10,048.67



Round 2 - Modeling *with* financial aid

RMSE of LassoCV model: 6,505.23



Results (cont.)

Round 1 - Modeling *without* financial aid

Final features (in order of importance)	Coefficient
Graduation rate	6,609
SAT/ACT scores are considered for admissions	5,485
# of applications	3,803
Acceptance rate	1,939
Price of books and supplies	1,035
Enrollment	961
Student-to-faculty ratio	656
# of full-time faculty	492
# of part-time faculty	24

Round 2 - Modeling *with* financial aid

Final features (in order of importance)	Coefficient
Average amount of financial aid per student	11,051
Graduation rate	2,409
Price of books and supplies	1,602
# of applications	1,375
# of full-time faculty	1,114
SAT/ACT scores are considered for admissions	1,013
# of part-time faculty	789
Enrollment	376
Student-to-faculty ratio	176
Acceptance rate	55

Conclusions

- Don't succumb to sticker shock before checking out a school's financial aid offerings.
- Consider a school's outcomes, like graduation rate, when evaluating the monetary investment of a school!
- These models could use some more tweaking
 - Scrape and add new features
 - Do more data cleaning (i.e., remove outliers from some features)