Lift Ticket Pricing Model

Presented to: Big Mountain Resort

Rebeca Mahr
November 30, 2020

Introduction

Background

- Big Mountain Resort (BMR) has 105 trails attracting 350,000 people for five days on average to ski or snow board each season.
- Added chairlift to increase distribution of visitors
  - **Operating cost: $1.54 M**
- Current ticket lift ticket price $81.00

Objective

- Identify a pricing model to **predict the ideal lift ticket price** for the next season based on BMR's most competitive facility features in comparison to market competitors.

Methods

Data source with 330 ski resorts in US

Data wrangling

Exploratory data analysis

Preprocessing and training

Modeling

Key Findings & Recommendations

Key Findings

- Top four features driving ski lift prices across resorts in sample were:
  - Number of fast four person chair lifts
  - Total number of runs at resort
  - Total area covered by snow making machines
  - Vertical change in elevation from summit to base
- BMR has more competitive facilities on each of these key driver features than a majority of other ski resorts in sample

Ticket Pricing Recommendations

Option 1:
Modeled ticket price

Ticket Price **$95.87**

Price Change **+$14.87**

Annual Revenue Change **+$26M**

Option 2:
Modeled ticket price - MAE* ($10.39)

Ticket Price **$85.48**

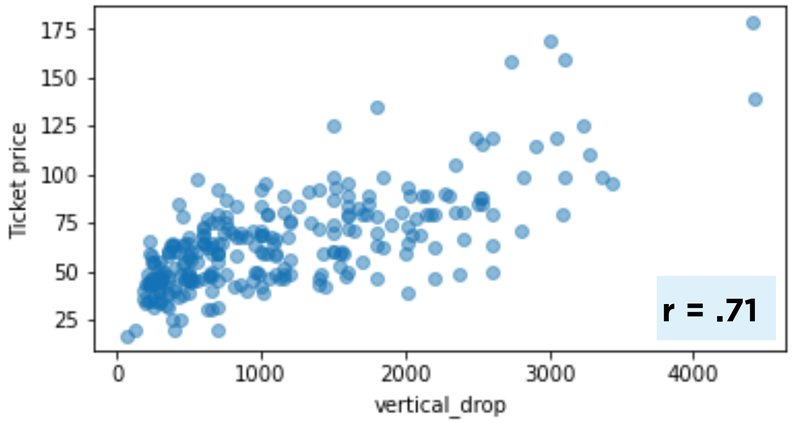
Price Change **+$4.48**

Annual Revenue Change **+$7.8M**

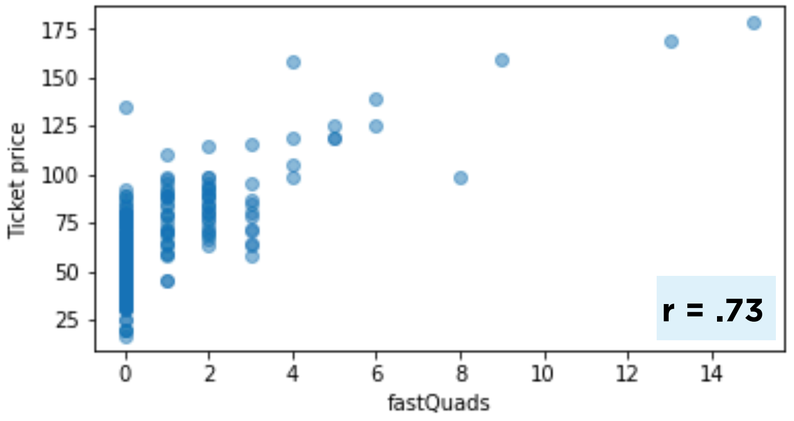
**MAE or Mean absolute error: Average amount of error in dollars expected when using the model to predict ticket price.*

Features Driving Lift Ticket Prices

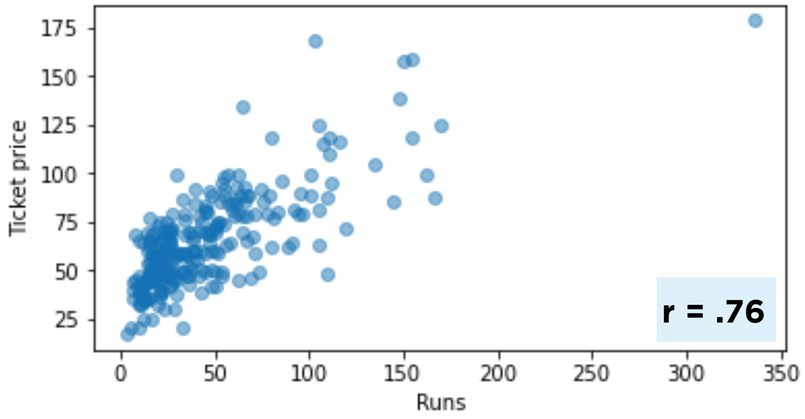
Vertical change in elev. from summit to base (ft)



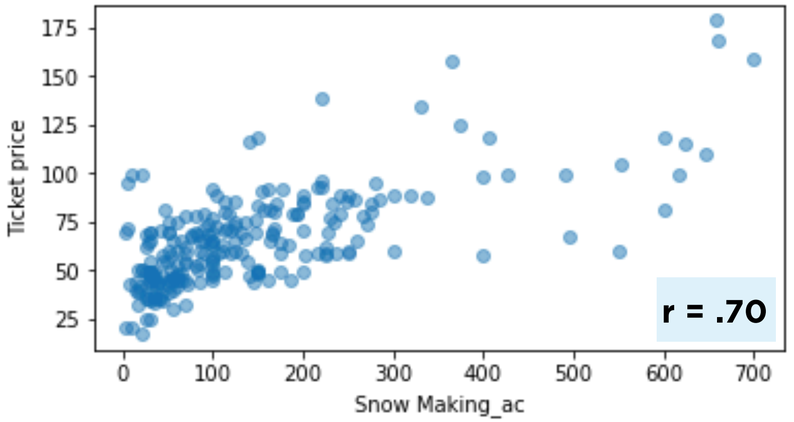
Number of fast four person chair lifts



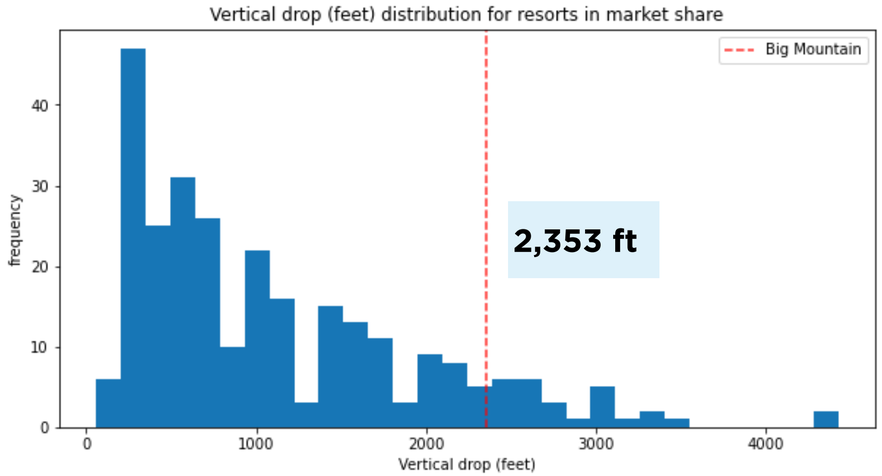
Total number of runs at resort

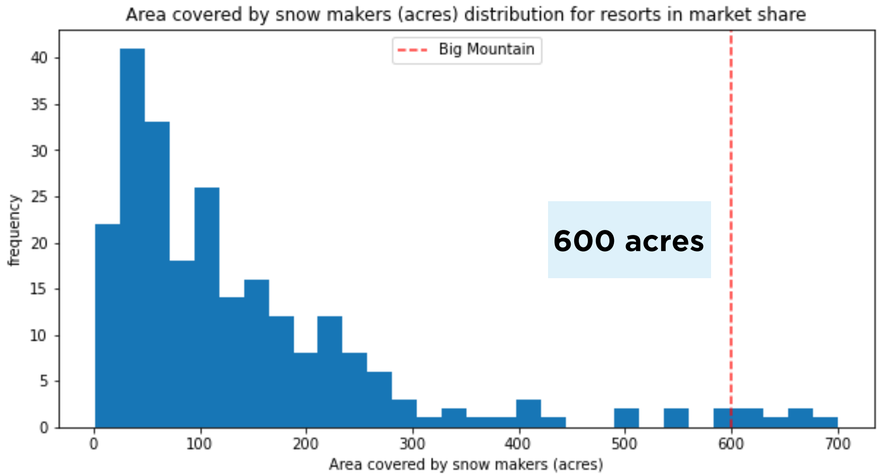


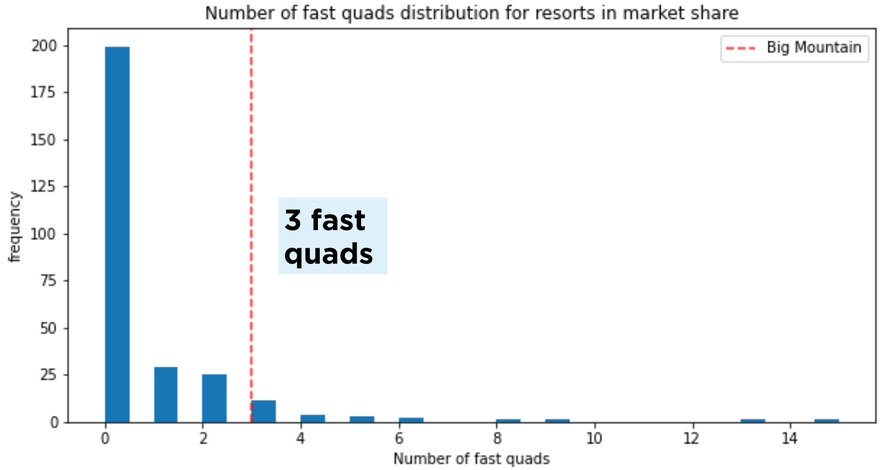
Total area covered by snow making machines (ac)

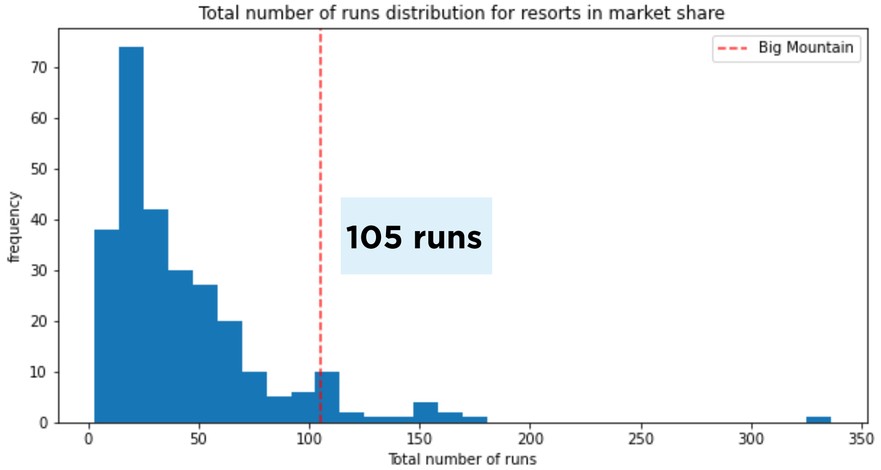


How does Big Mountain Resort Compare?









Models Tested

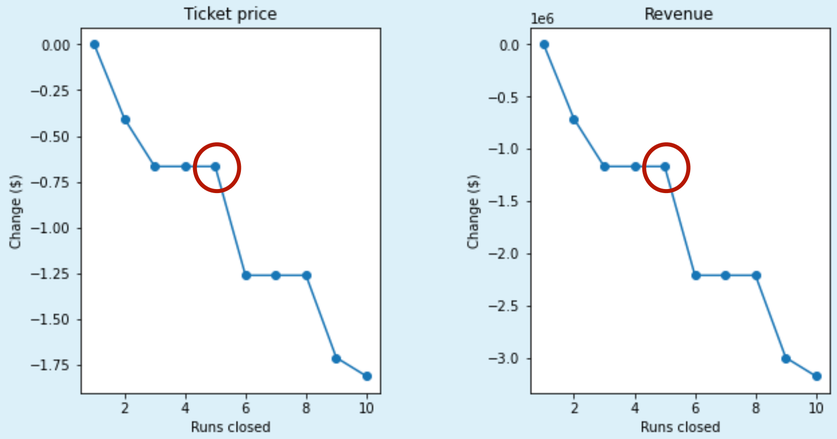
	Mean *Avg. ticket price across sample ($63.80)*	Linear Regression *Based on key driver features*	Random Forest Model *Based on key driver features*
MAE Average amount of error in dollars expected when using the model to predict ticket price	**$19.14**	**$11.79**	**$9.54***

**MAE for random forest model shown here is based on an average of tests across 4 subsets of sample data. Final MAE of $10.39 is based on applying model to full data set after training and testing.*

Facility Modification Scenarios

Scenario 1

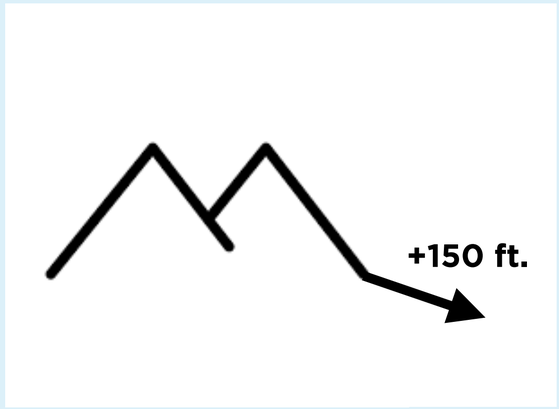
Closing five of BMR's existing runs



Model ticket price change	**-$0.66**
Model annual revenue change	**-$1.17M**
Operational cost change	**+?**

Scenario 2

Increasing max vertical drop by 150 ft



Model ticket price change	**+$1.99**
Model annual revenue change	**+$3.5M**
Operational cost change (min)	**+1.54M**

Summary & Conclusion

- BMR offers **highly competitive facilities** particularly among key drivers of ticket prices, so there is great opportunity to increase lift ticket prices.

- While the modeled lift ticket price of $95.87 is appropriate considering BMR's facilities, increasing the **lift ticket price to $85.48** instead, may be a more reasonable alternative for maximizing customer retention and would still result in **annual revenue increase of $7.8 million**.

- Alternative scenarios for modifying facilities may also be considered in order to increase net revenue.
  - Scenario 1: **Closing 5 of BMR's existing runs** for potential operational cost savings with $0.66 decrease in modeled ticket price and $1.17 million decrease in modeled annual revenue increase.
  - Scenario 2: **Increasing the max vertical drop by $150 ft.** allowing an increase to the modeled ticket price of $1.99 and a $3.5 million increase to the modeled annual revenue increase, although this would require at least a $1.54 million operational cost increase.