
Big Mountain Resort Price Model Presentation

Data Intelligence Team
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Problem Identification

- BMR has been charging a premium above the average market price.
- This pricing strategy doesn't provide insight on the relative importance of facilities compared to each other and thus hampers investment strategy.
- With a recent investment of \$1.54M in an additional chair lift, BMR is under pressure to make changes to either cut costs without undermining the ticket price or support an even higher ticket prices.
- The goal of this project is to deliver a price model to help set the optimal ticket price based upon facilities BMR has or will acquire.

Recommendation & Key Findings

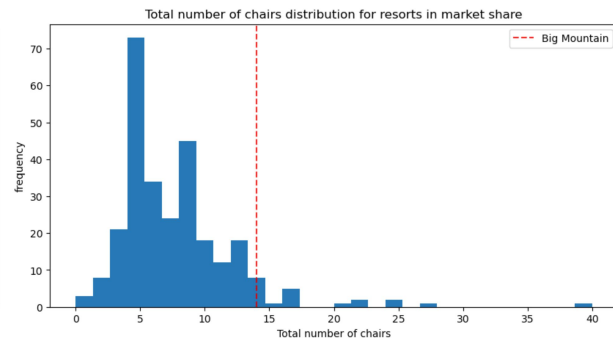
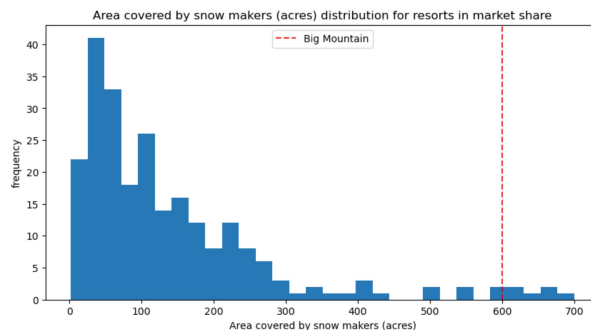
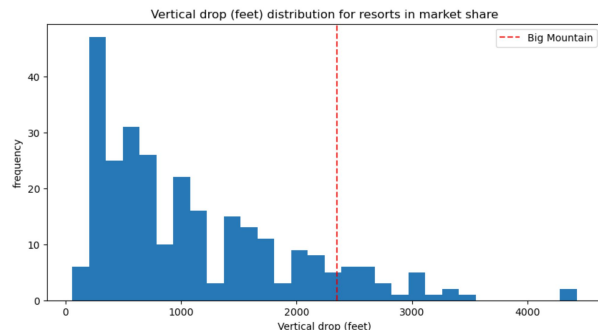
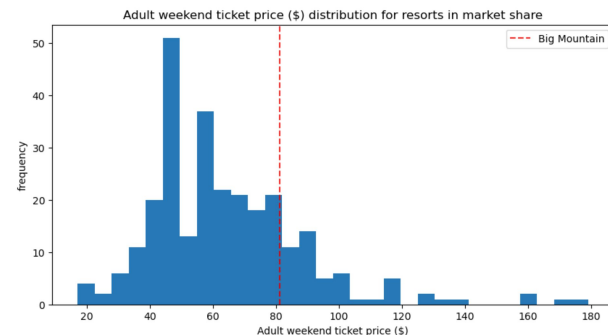
- There's room for price increase.
 - Current ticket price = \$81
 - Target price supported by model = \$95.87
- BMR should close down the least used run.
 - This won't impact the ticket price nor revenue, but will reduce the operation cost associated with operating that run.
- BMR should increase the vertical drop by adding a run to a point 150 feet lower down and use the additional chair lift just installed to bring skiers back up.
 - This will increase support for ticket price by \$1.99, resulting in \$3,474,638 estimated additional revenue.

Model Results & Analysis

- Using a seaborn scatterplot, we are able to conclude that there's no pattern showing a relationship between state and ticket price.
- Using a heatmap and a scatterplot, we've identified close correlation between ticket price and resort features such as the vertical drop, snow making area, the number of chairs, fastQuads, runs, etc.
- Using the mean absolute error and the train/test sets, we've concluded that using average price in the model doesn't work, as it will set prices off by around \$19.
- Comparing a linear model with a random forest model, we've decided to use the random forest model, as it has a lower cross-validation mean absolute error and exhibits less variability compared to the linear model.

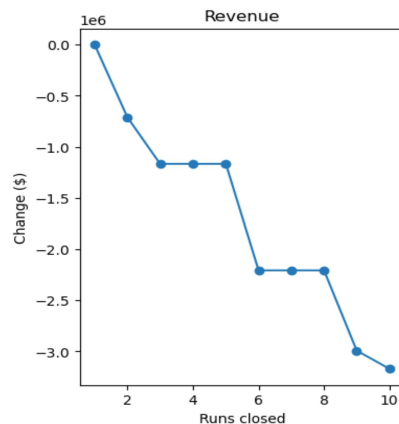
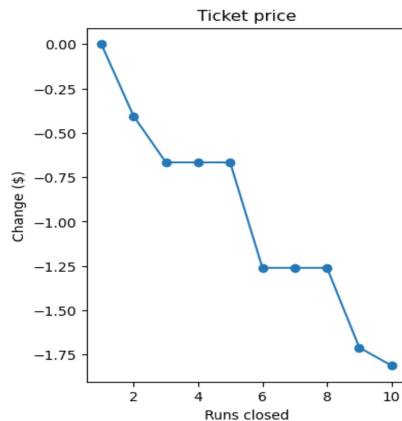
Model Results & Analysis

- BMR charges a premium ticket price at \$81, which is above average, but not amongst the highest.
- BMR is doing well for vertical drop, but there are still quite a few resorts with a greater drop.
- BMR is very high up the league table of snowmaking area and number of total chairs.
- All these justify future price increases.



Model Results & Analysis

- Scenario Evaluation: Closing up to 10 of the least used runs
 - Closing one run makes no difference.
 - Closing 2 and 3 runs successively reduces support for ticket price and so revenue.
 - If we closes down 3 runs, we should as well close down 4 or 5, as there's no further loss in ticket price.
 - Increasing the closures down to 6 or more leads to a large drop.



Model Results & Analysis

- Scenario Evaluation: Adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift.
 - This scenario increases support for ticket price by \$1.99. Over the season, this could be expected to amount to \$3,474,638 additional revenue.
- Adding 2 acres of snow making to this scenario makes no difference in ticket price.
- Increasing the longest run by 0.2 miles and guaranteeing its snow coverage by adding 4 acres of snow making capability on top of this scenario doesn't make any difference either.

Summary & Conclusion

- Big Mountain Resort should increase its ticket price referencing the \$95.87 target price supported by the model
- Big Mountain Resort should implement the following facility operation changes to cut cost and increase revenue.
 - Close down the least used run immediately while evaluating the timeline to close additional runs.
 - Increase the vertical drop by adding a run to a point 150 feet lower down & use the new chair lift just installed to bring skiers back up.
- Moving forward, we recommend that this price model be used as a reference point for all facilities related decisions including but not limited to new facility investment, facility operation strategy changes, etc.