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Big Mountain Resort Problem Statement

What ticket price adjustment and/or operational cost reductions could position BMR for profit and an optimal competitive edge among similar resorts, for implementation prior to the next season toward 5-year growth of 10% +?

Summary of Findings

Big Mountain Resort has been expanding but could be more profitable with more intentionally-set ticket prices. Our goal is to find an optimal ticket price given existing and proposed facilities and to reduce costs associated with potentially extraneous features that don't provide a competitive edge. Fortunately, comparative analysis with similar resorts in the market shows that BMR could justify raising ticket prices by $5-15 without making any changes to current facilities. Furthermore, some of the proposed changes have been wisely selected: a modest reduction of lifts would minimally degrade projected ticket prices, and increasing the longest run could justify a further ticket increase.

Process

When considering ticket prices, analysis is based on weekend charges. For most resorts, weekday price differences were negligible and less likely to correlate with key resort features. Some resorts' records were missing prices and were not included in the analysis; 277 of the 330 resorts' prices and features have been compared.

Common sense might suggest that characteristics such as location or acreage are determining factors in setting ticket prices, but closer analysis does not support this assumption. Instead, it would seem that people pay more for key features including: number of fast quad lifts, total runs and chairs, snow making capabilities, vertical drop, and, to a lesser degree, length of the longest run and night skiing availability. BMR can control all of these features and is already among the strongest resorts when it comes to providing skiers what they want.

<table>
<tr><th colspan="3">Features Skiers Pay For at Big Mountain Resort</th></tr>
<tr><th>Feature-Price Correlation</th><th>How BMR Stands among Competition</th><th>BMR's Ticket Pricing</th></tr>
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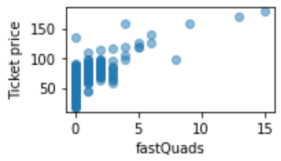
<td> 
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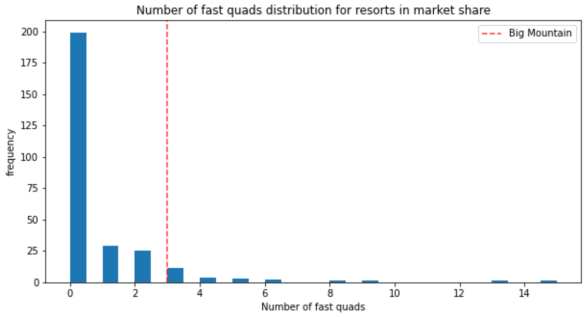
<td rowspan="2"> 
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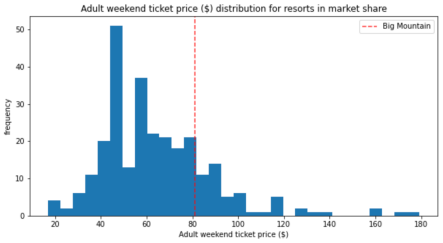
<td rowspan="2"> 

BMR charges above-average rates, but as seen on the left, falls far above average when it comes to providing key features. There is likely room to increase prices further without driving away many customers.</td>
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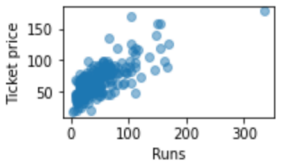
<td> 
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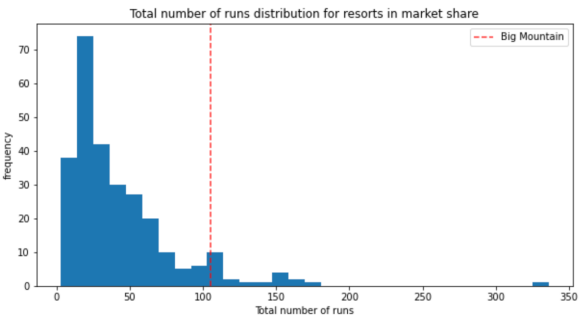
<td colspan="2"> 
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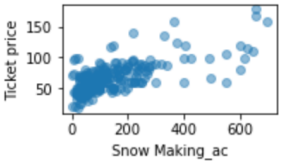
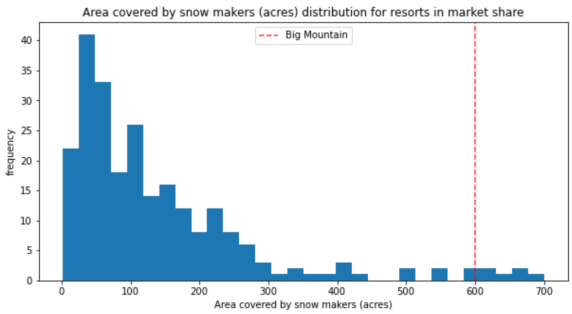
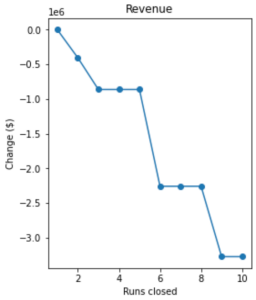


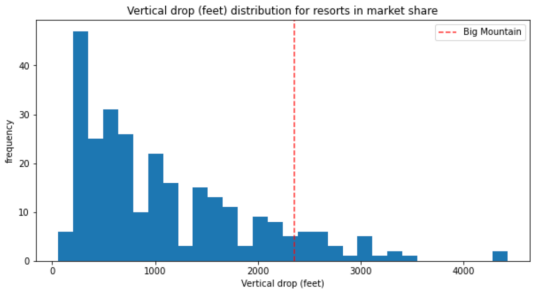


Once likely key features were identified, a linear regression and a random forest pipeline were each used with cross-validation to model the likelihood that each feature would in fact be predictive of ticket prices. The random forest model performed best, and after learning with the data and testing the model, it was used to make predictions. This model identified four features as most important: number of fast quads, number of runs, snow making acreage, and vertical drop. The model was also used to predict what the ticket price BMR could be given its facilities. The modeled price was $96.32 compared with the current actual price of $81. Even with an expected mean error of $10.41, this suggests there is room for an increase of at least $5. The random forest model was finally used to make predictions about the results of proposed scenarios; these findings are presented below.



Conclusions Based on Proposed Changes

1. Permanently close 1-10 runs – See figure left. Closing up to 5 runs would likely have a minimal detrimental impact on revenue.
2. Increase vertical drop - See figure right. BMR has a large vertical drop, but there are a number of higher resorts. Vertical drop has arguably the strongest connection with ticket prices; increasing BMR's could be lucrative. Models predict that a vertical drop increase of 150 feet would support a $2 ticket price increase, which is relatively high for a single feature change.



3. Increase vertical drop and snow making acreage – Adding snow making acreage was predicted by models to provide zero justification for increased ticket price.
4. Increase longest run: The length of the longest run may have some significance, indicated by a linear model, but the random forest model shows that it is less crucially connected with ticket price than other features. In fact, the prediction is that increasing the longest run would not support an increased ticket price at all.

Additional Considerations

All of the proposed facilities changes would result in changed operating costs, and these should be considered in conjunction with the predicted impact on ticket prices. This would, of course, mean reduced operating costs for the option of shutting down some lifts and increased operating costs of adding a lift for the higher vertical drop. Because all models showed that the number of fast quad lifts is a strong predictor of ticket prices, it may be helpful to explore the possibility of making the new lift a fast quad. Also, because artificial snow-covered acreage is one of the areas where BMR is extremely high compared to competitors, and because adding more acreage was shown to have no benefit, it may be worth exploring the possibility of reducing snow making. it may be that a small reduction would have no deleterious effects, as was found with making a small reduction in the number of lifts, and this could be an additional strategy for reducing costs.