Recommendation on the Ticket Price Raise and Future Facility Changes for Big Mountain Resort

Big Mountain Resort's price strategy has been to assess a premium above the average price of resorts in its market segment. It is currently charging 81 dollars for adults on weekdays and weekends. However, basing the pricing on the market average may have limitations, such as under-capitalizing its facilities. We have acquired the data on ticket prices and facilities of United States resorts, including Big Mountain, and built a model to predict a new ticket price based on Big Mountain's important facilities. The model can also aid the decision-making in future price strategies and cost cuttings under different scenarios of facility operations.

Using a random forest model, we found that Big Mountain Resort has several advantages regarding facilities influencing ticket prices. For example, its vertical drop is greater than the majority of the resorts; its snow-making area is more than almost all the resorts; its number of total chairs is among the highest; it has three fast quads while most resorts have none; it also has more runs than almost all the other resorts and has one of the longest runs; it is also among the resorts with the largest amount of skiable terrains (Figure 1). These advantages in the market context can justify a substantially higher price than the market average. Our model suggests Big Mountain charge 95.87 dollars, with the expected mean absolute error of 10.39 dollars, assuming other resorts set their prices accurately according to the market's support.

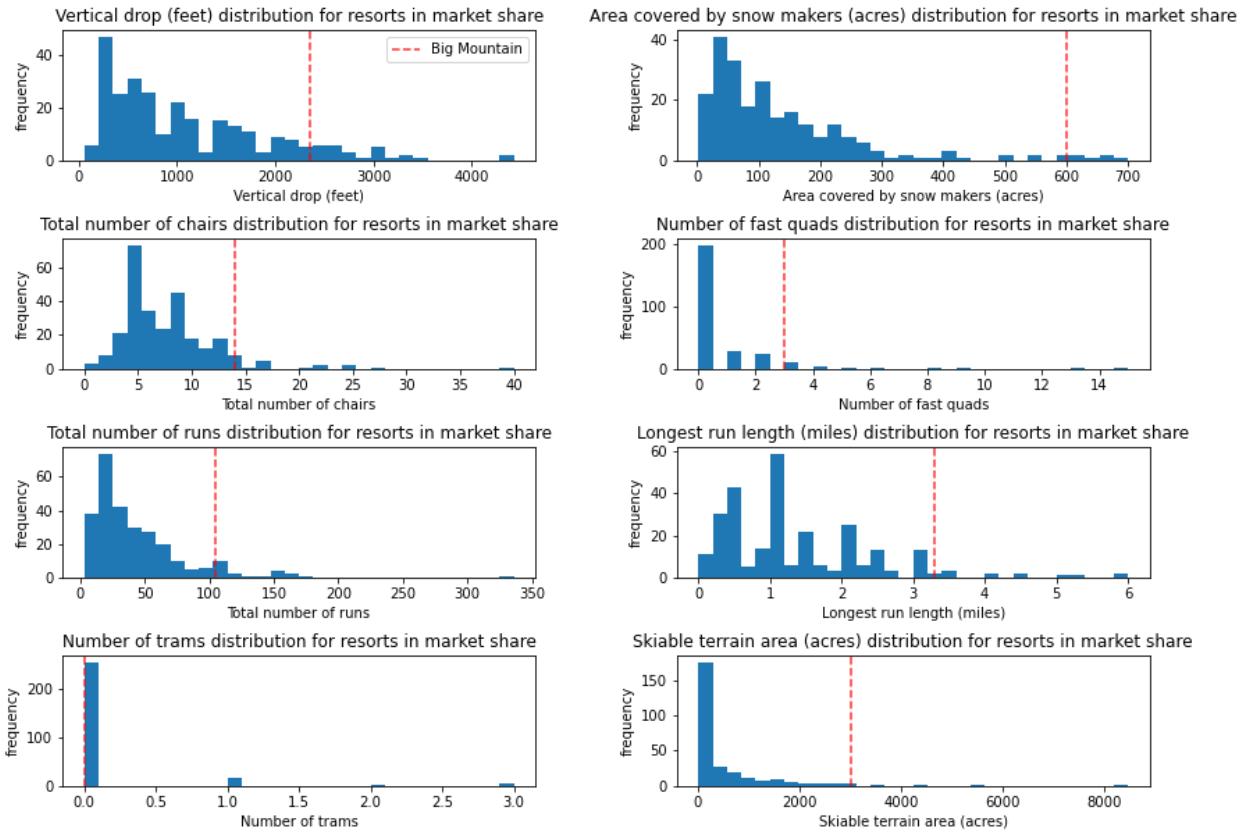

Figure 1. *Position of Big Mountain Resort regarding facilities in market share*

Big Mountain Resort also has recently installed an additional chair lift to help increase the distribution of visitors across the mountain. This extra chair increases the operating costs by 1,540,000 dollars this season. Assuming the number of expected visitors for this season is 350,000, and each visitor buys five-day tickets on average, we expect Big Mountain to sell 1,750,000 tickets. Therefore, raising the ticket price by 0.88 dollars can cover these additional operating costs.

For future improvements, we explored several scenarios of facility changes that could help support higher ticket prices or cut costs without undermining the ticket price too much. We found adding a run, increasing the vertical drop by 150 feet, and installing an additional chair lift can increase support for ticket prices by 8.61 dollars and could amount to $15,065,471 this season. The model also suggests cutting costs by closing the least used runs. It shows that closing one run seems to make no difference; closing 2 and 3 runs reduce support for ticket price and revenue and closing 3 runs has the same effect as closing 4 or 5 runs; closing 6 or more runs will lead to a significant drop (Figure 2). Therefore, we suggest closing the least used run first and then testing the closing of the second least used run to see the effects; if the outcome is manageable, close the third, fourth, and fifth least used runs together and see the impact.

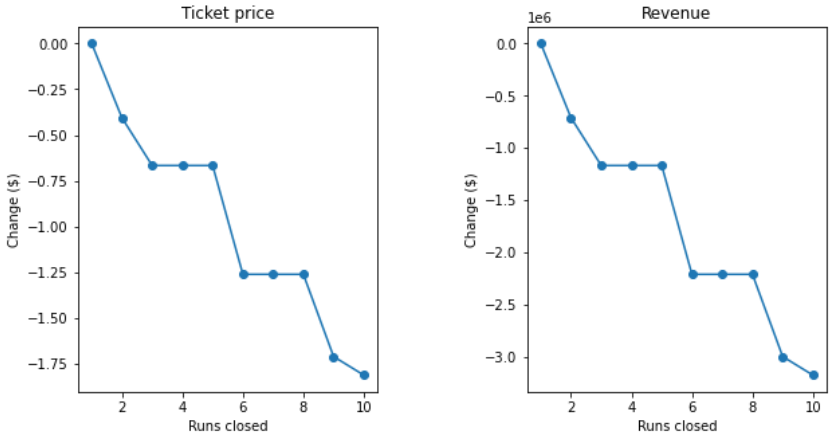

***Figure 2**. Predicted ticket price (left) and revenue (right) change in dollars (y-axis, note that for revenue it is in 1e6 dollars) after closing number of runs (x-axis).*

The scenarios we have tested are limited. Suppose Big Mountain finds our model helpful and wants to test a new combination of parameters in a scenario. In that case, we can write a function so that their business analysts can easily explore different scenarios and make decisions on their own.

On the last note, the above discussion of the scenarios is mainly based on the information on the ticket prices alone. The other component of profitability, the costs, are also essential in decision making. In addition to the additional operating cost of the new chair lift that we know, it will be helpful to have other cost information to make a more accurate prediction for pricing strategy design.