As the operational cost of the Big Mountain resort has increased for $1,540,000 due to the new chair lift, a model has been built as a guidance on (1) how to select a better value for ticket price and/or (2) either cut costs without undermining the ticket prices or will support an even higher price.

How much the ticket price should increase to cover the additional cost of the new lift? As the expected number of visitors over the season is 350,000, and each visitor is expected to get tickets for 5 days, increasing the ticket price by $0.88 will be sufficient to cover this additional cost within one season. However, the question is that whether this new ticket price is well supported.

The ticket price of a ski resort should be supported by its facilities. By analyzing the facilities across 277 ski resorts nationwide, we found that the current Big Mountain resort’s adult weekend ticket price ($81) is higher than both national and Montana average (Fig 1). On the other hand, its facilities also outperform than most of the resorts in the US, including vertical drop, area covered by snow makers, number of chairs, number of fast quads, number of runs, the length of the longest run, and the skiable terrain area (Fig 2). Therefore, there might be a room to further increase the ticket price.

Chart

Description automatically generated

Figure 1

I used a random forest machine learning approach to model the relationship between ticket price and facilities across all resorts. According to this model, the facilities of the Big Mountain resort worth $95.87/ticket (with a statistical estimation error of ± $10.39). Therefore, it appears that increasing the ticket price of Big Mountain resort up to $95 can be well supported by its facilities.

I further created a function to understand how adding or removing some of the facilities of the Big Mountain resort would change the supported ticket price and the revenue. For example, Fig 3 showed that closing one run makes no difference. Closing 2 and 3 runs will reduce the support of the ticket price and the revenue. Furthermore, if Big Mountain closes 3 runs, it may as well close 5 runs as it makes no further difference.

In conclusion, my suggestion would be increasing the ticket price for $1 for this season, as it sufficiently covers the additional costs. I am conservative of suddenly raising the ticket price to $95, even the model suggested so. It is because we do not have the data to understand how the customers would react to the ticket price change, and all the current model assumed that the number of tickets sold will remain constant. Nevertheless, in the next season, once the resort collects the data of the number of tickets sold per season before and after this price change, it is possible to model how the price change to $95 will affect the number of tickets sold.

Graphical user interface

Description automatically generated with medium confidence

Figure 2

Chart, line chart

Description automatically generated

Figure 3