

We used the Random Forest Model which provided the highest performance. According to our analysis there are 8 features that are the most important when determining the ticket price. We listed below how Big Mountain (BM) compares to other resorts in those features:

- **vertical_drop:** BM is doing well but there are still quite a few resorts with a greater drop.
- **Snow Making_ac:** BM is among the top of the league table of snow making area.
- **total_chairs:** BM has amongst the highest number of total chairs. Resorts with more appear to be outliers.
- **fastQuads:** Most resorts have no fast quads. BM has 3, which puts it high up that league table. There are some values much higher, but they are rare.
- **Runs:** BM compares well for the number of runs. There are some resorts with more, but not many.
- **LongestRun_mi:** BM has one of the longest runs. Although it is just over half the length of the longest, longer ones are rare.
- **trams:** The vast majority of resorts, such as BM, have no trams.
- **SkiableTerrain_ac:** BM is amongst the resorts with the largest amount of skiable terrain.

Big Mountain Resort's current price, \$81, is the most expensive in its own state of Montana as shown in Figure A.

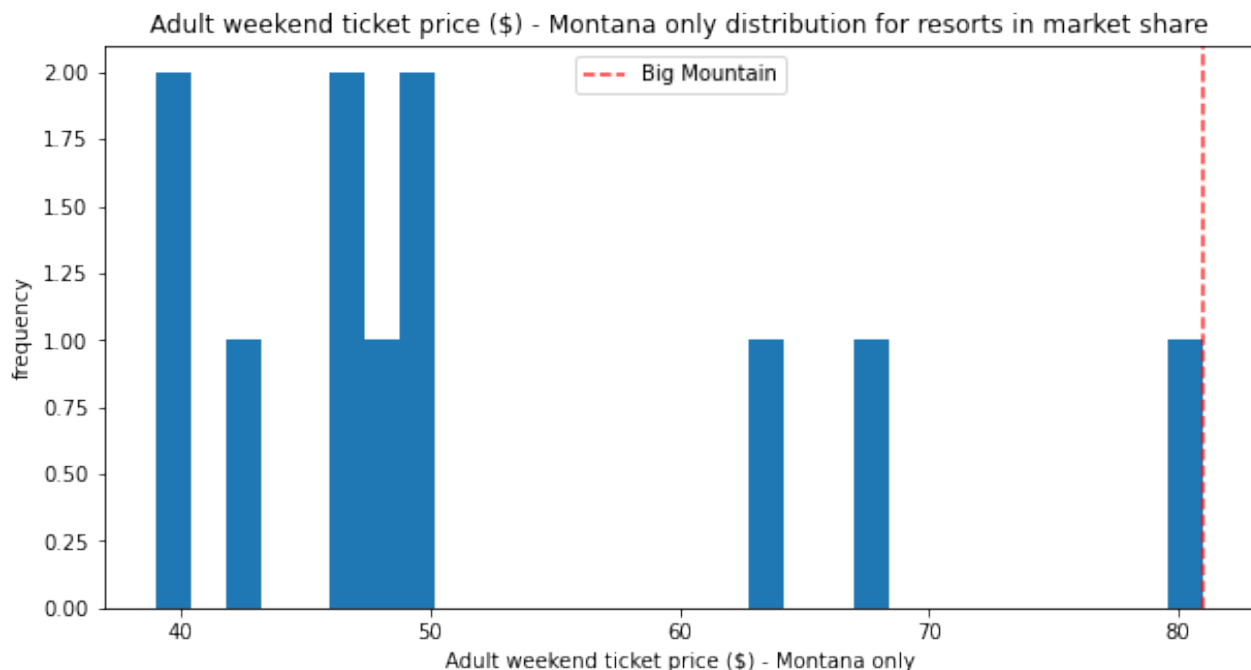


Figure A

The model predicted that Big Mountain Resort's ticket price should be \$97.85, which is significantly higher than the current price. There are two reasons to support a price increase: 1.) BM's ticket price is within an average range when compared to other resorts (see figure B), and 2.) BM is high on many of the league charts of facilities offered as noted above. Furthermore, if we consider the expected mean absolute error of \$10.17, the range for the ticket price would be (87.68, 108.02), therefore justifying an increase.

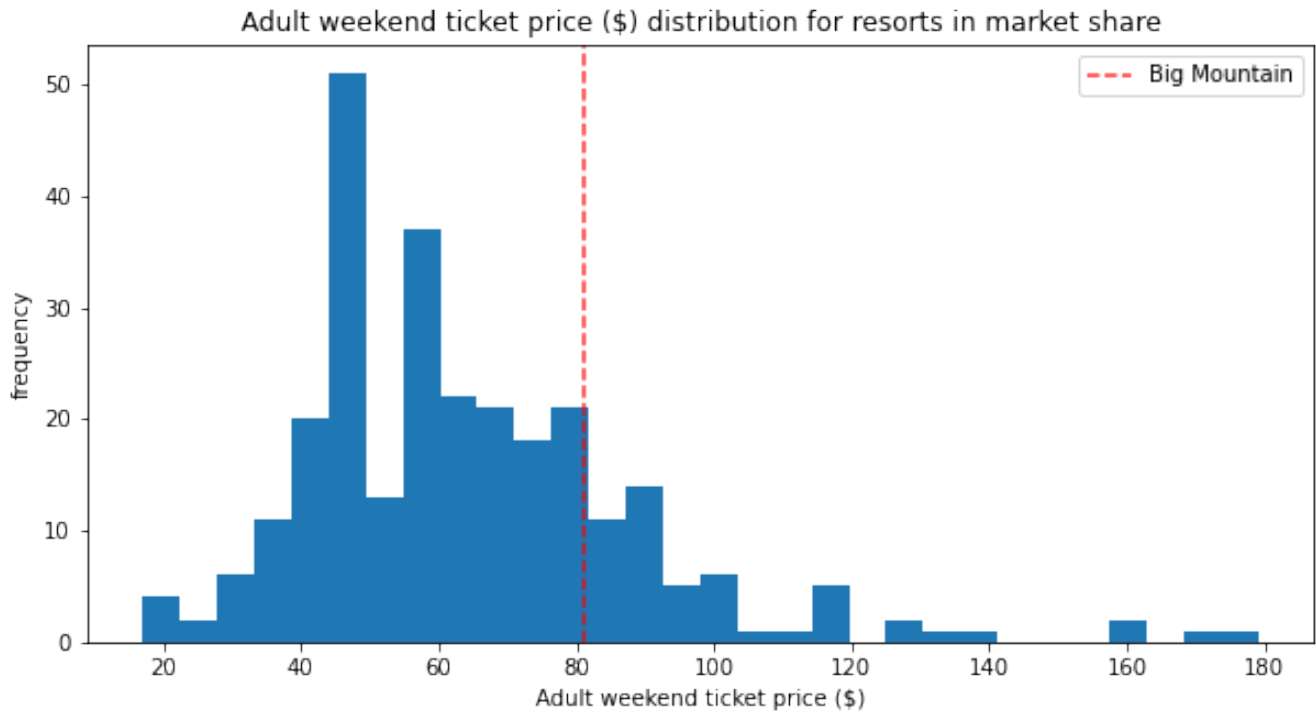


Figure B

We also investigate the potential changes BM is contemplating. Based on our findings, I would suggest that the company should consider increasing the vertical drop by adding a run to a point 150 feet lower down and installing an additional chair lift since it increases support for ticket price and consequently revenue. I would also recommend that they may close only one run (the least used) since it makes no difference and might decrease the cost of operating. It is also worth mentioning that the remaining scenarios don't have any benefit but they might increase the cost. Thus, one might ignore these scenarios all together.

we observed that the quantity of the data is sufficient for the investigation. However, it would be helpful if we have data about visitor numbers, visitors' satisfaction as well as operating costs. In particular, we would have more insight if we know how costly each scenario is.