

Big Mountain Resort

Goal: increase profits by 10% next season

- Increasing, upgrading, or removing lifts.
- Increasing or decreasing number of trails
- Increasing or decreasing snow making
- Altering ticket prices
 - What is the optimal ticket price given our facilities?
 - How should ticket price change in response to upgrades?

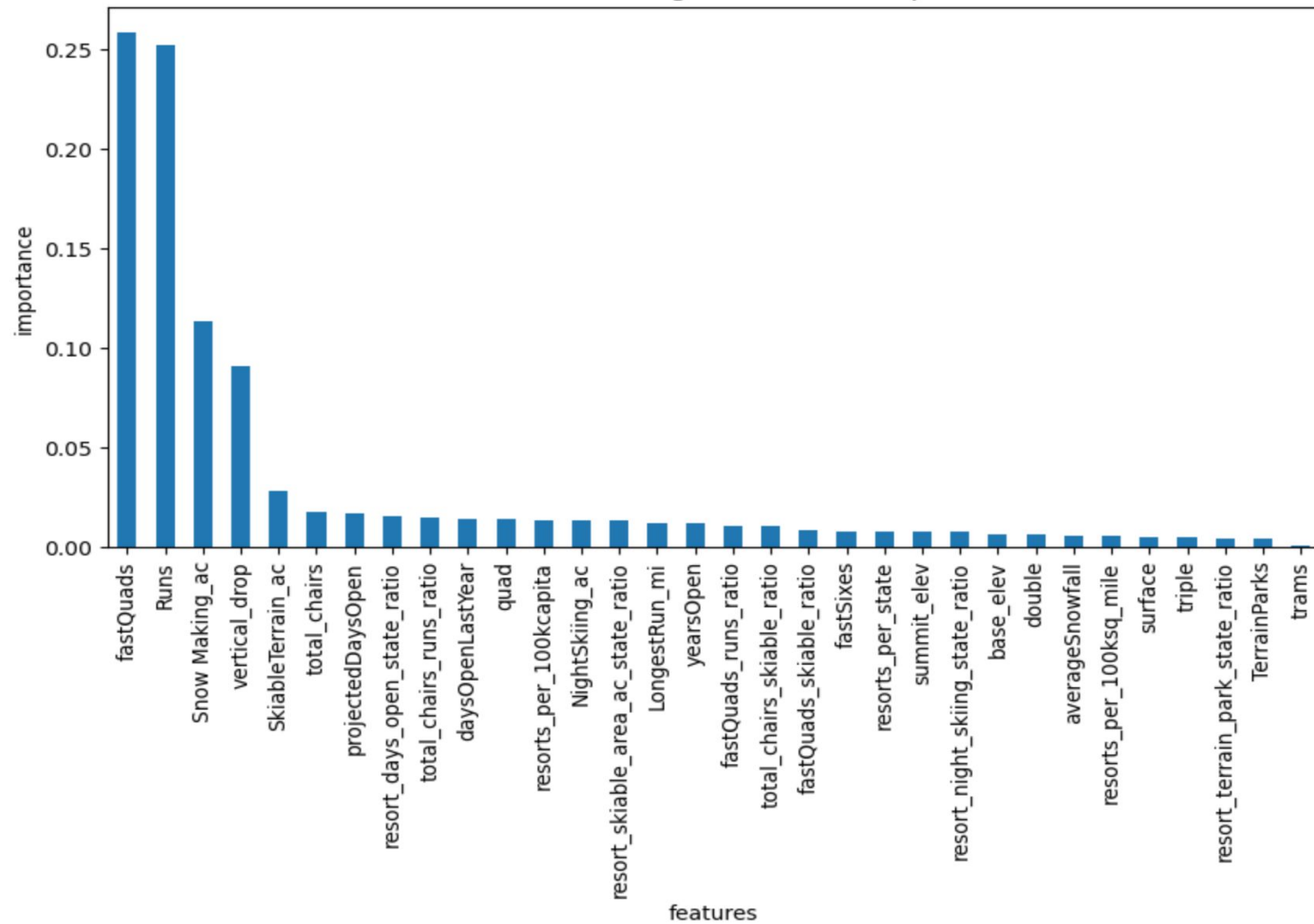
Recommendation: Big Mountain Should Raise Ticket Price

- Fast quads, snow making acres, number of runs, and vertical drop are the most important features for a higher ticket price.
 - Big Mountain's facilities support a \$14 higher ticket price.
- For further upgrades consider a new lift that increases the vertical drop by 150 ft.
 - This upgrade supports a further \$8.50 increase in ticket price.
 - Increased ticket prices would cover cost of new chair lift.

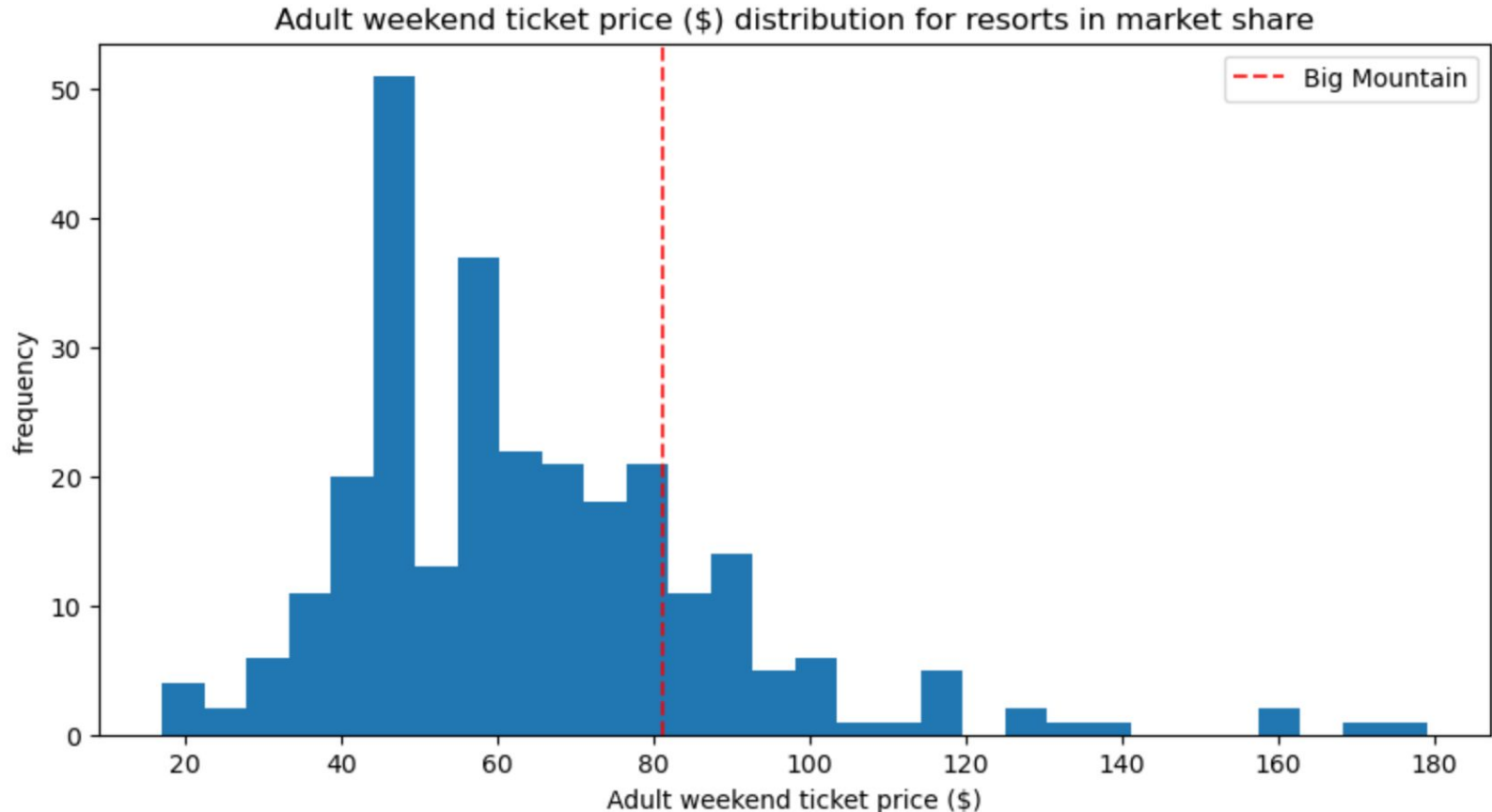
Random Forest Model Selected

- Random Forest Regression Model
 - MAE mean: 9.645
 - MAE std: 1.3528565172191818
 - Imputing Strategy: Median values
 - Number of estimators: 69
 - Cross validation: 5
- All features used were numeric so no special conversions were necessary.

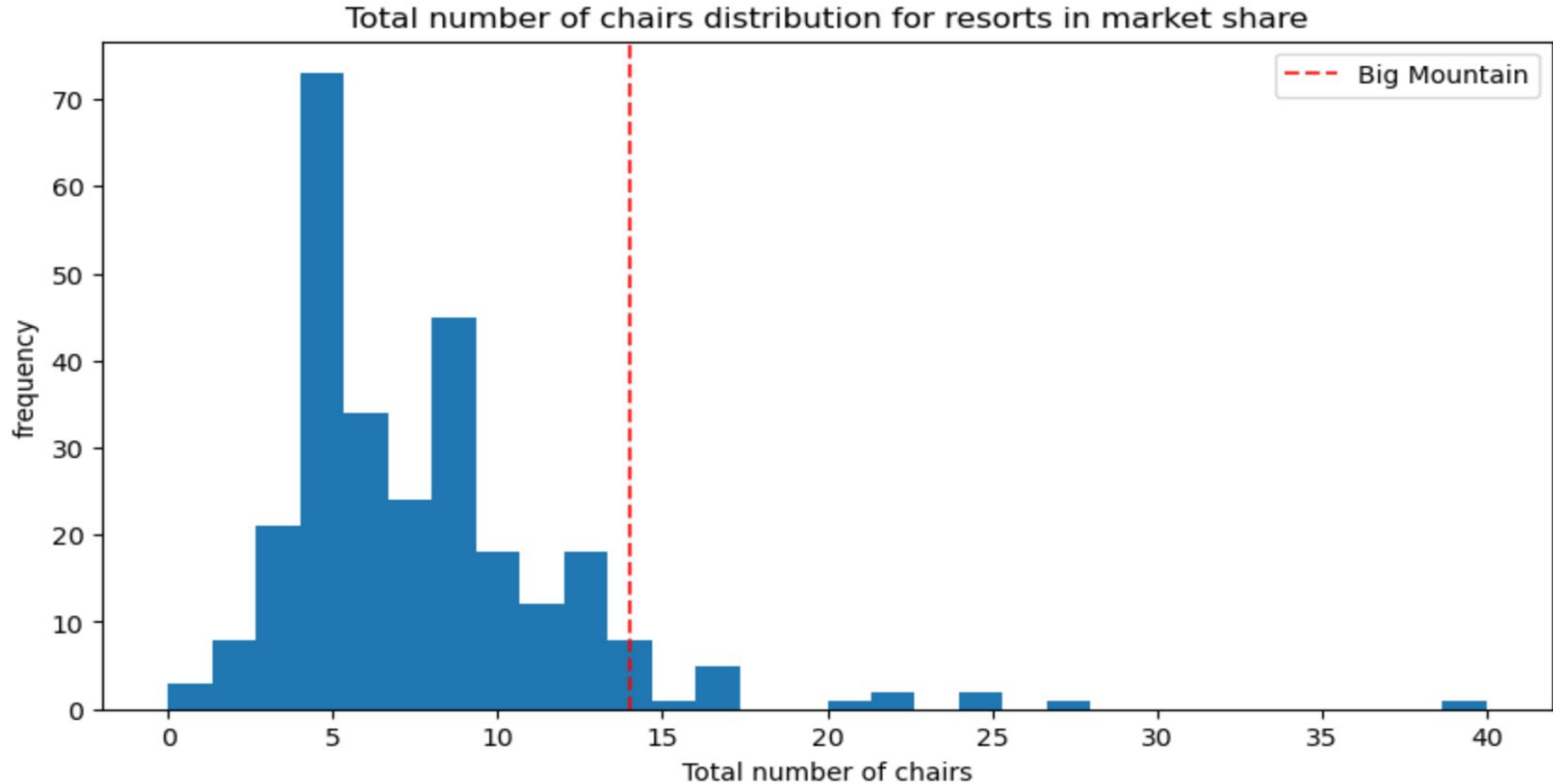
Best random forest regressor feature importances



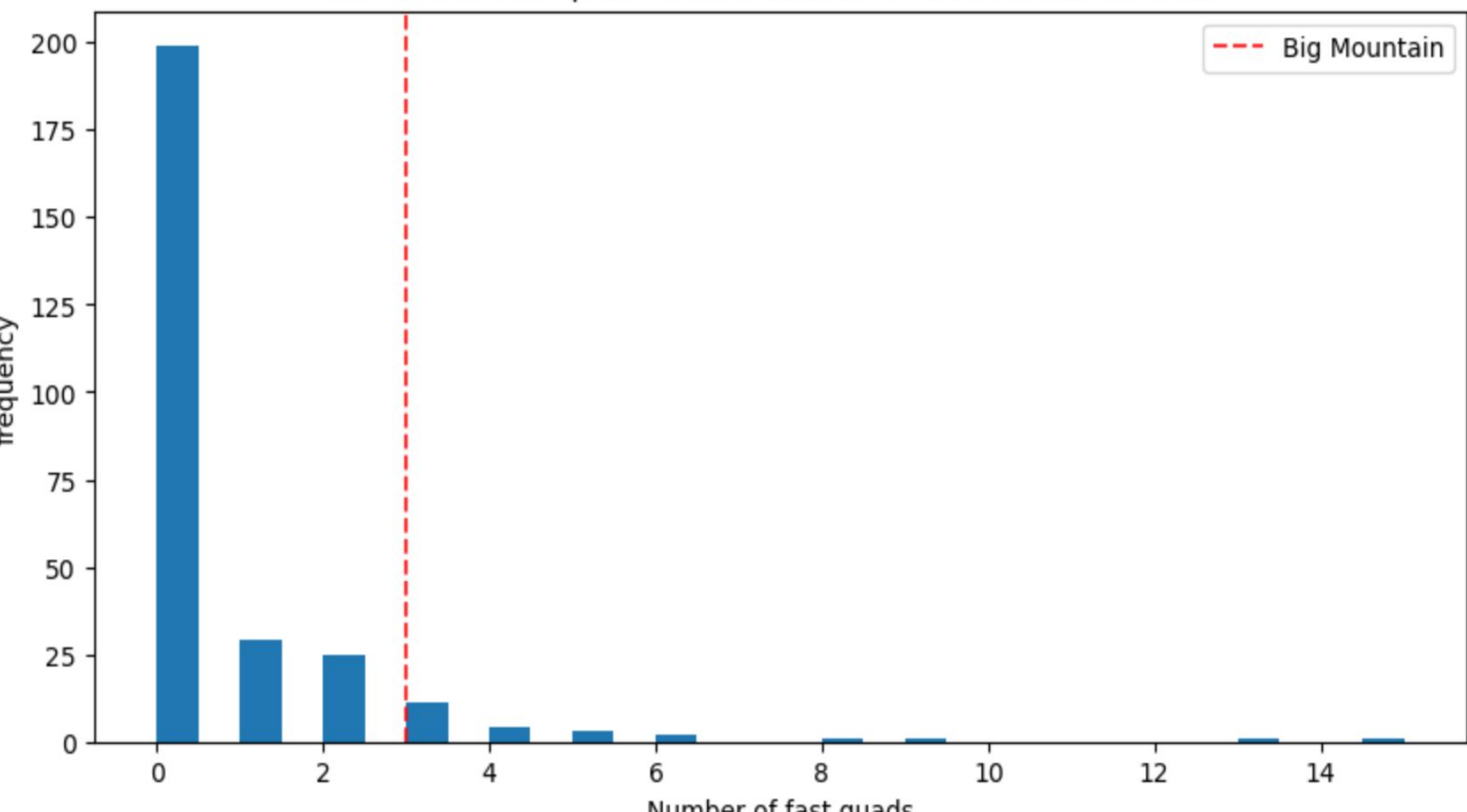
How Does Big Mountain Ticket Price Compare?



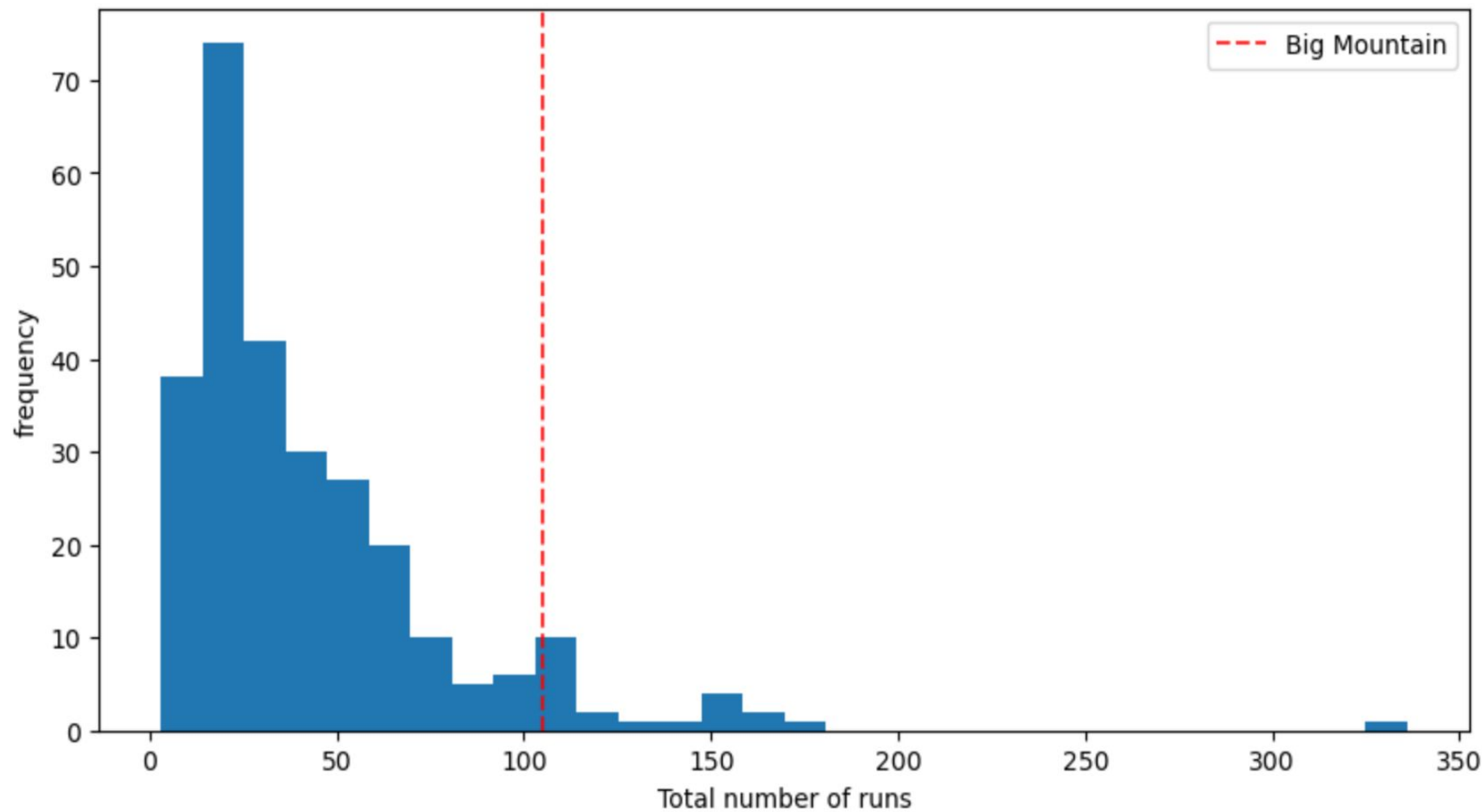
How Do Big Mountain's Features Compare?



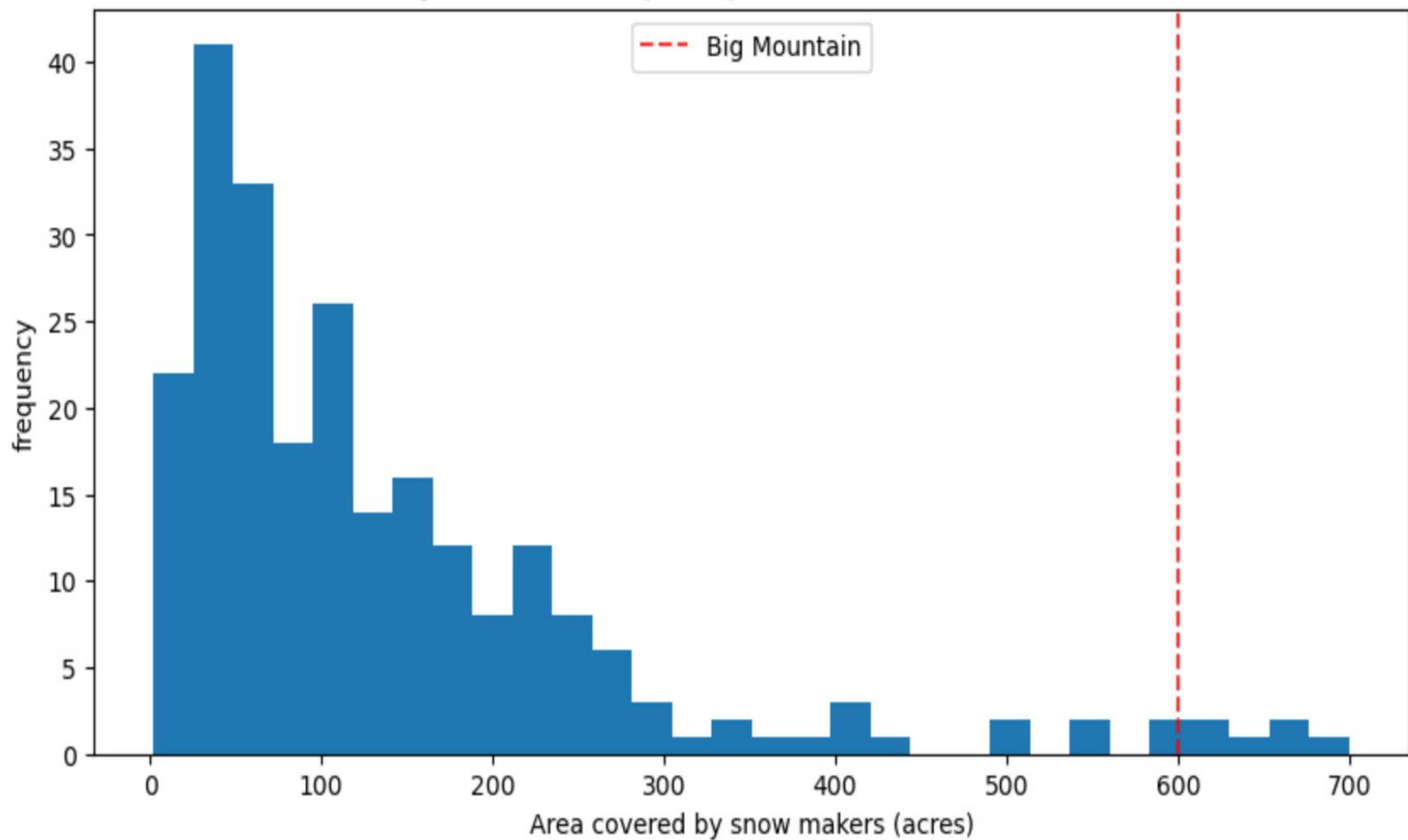
Number of fast quads distribution for resorts in market share



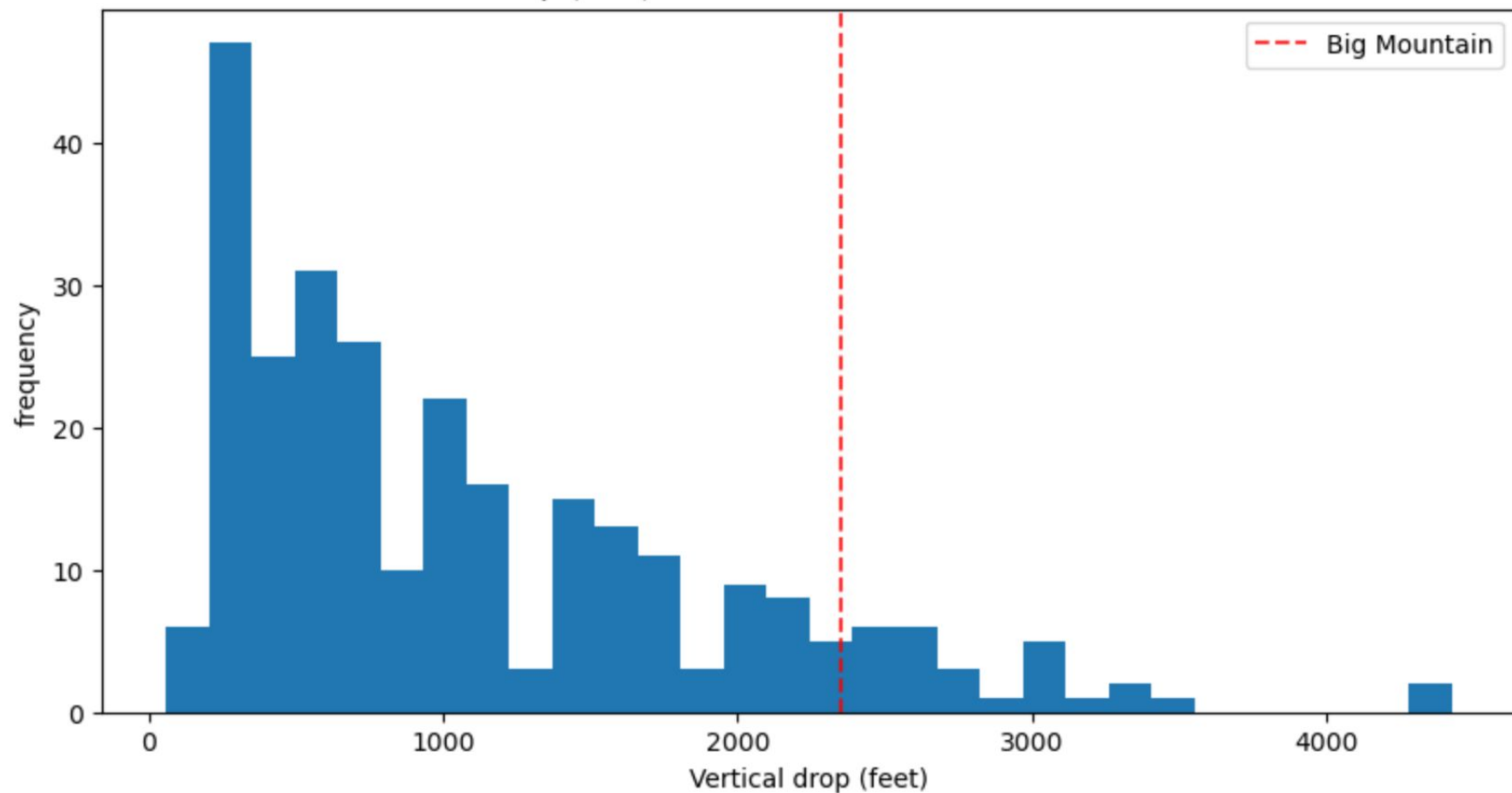
Total number of runs distribution for resorts in market share



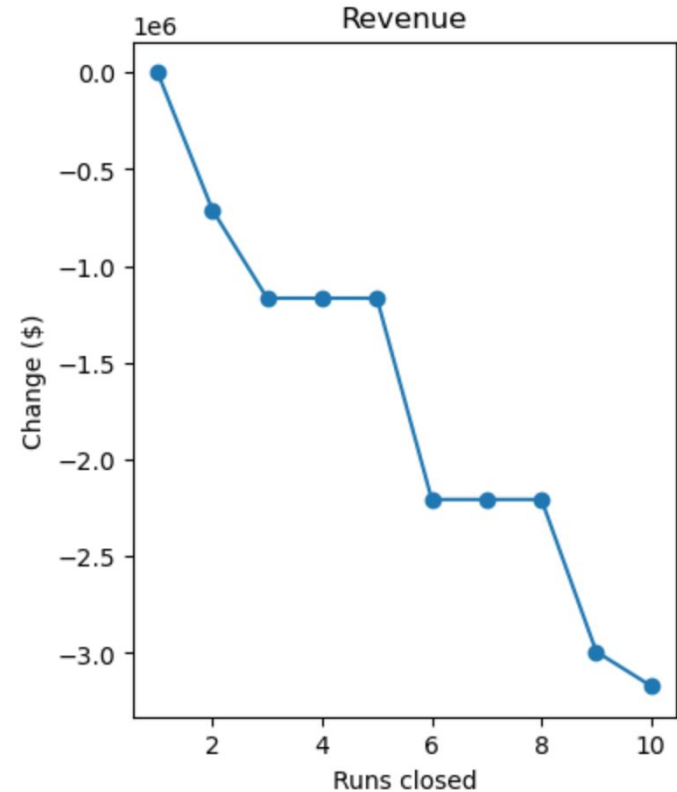
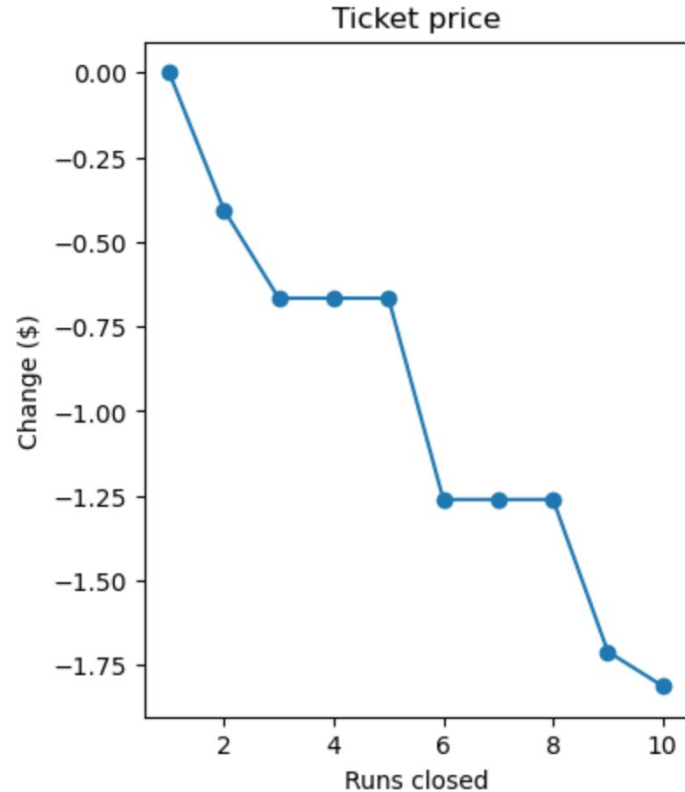
Area covered by snow makers (acres) distribution for resorts in market share



Vertical drop (feet) distribution for resorts in market share



Projected Revenue And Ticket Prices With Run Closures



Summary and Conclusion

- The model projects a ticket price of \$95.87 with a standard deviation of \$10.39.
- The model projects a ticket price of \$104 if vertical drop is increased 150ft from adding a new lift. Increasing revenue by an estimated \$15,065,471
- Cost of new chair lift is only 1.5 million
- Revenue loss is the same when closing down 3, 4, or 5 runs.
- From the graphs it is clear Big Mountain has many premium features that support an even higher ticket cost despite its ticket prices already being above average.