

## How Big Mountain Ski Resort can reduce annual operating costs or increase revenue by \$1.5 million?

Big Mountain Resort recently installed a new chairlift. To cover the additional operating costs of \$1,540,000, the resort must either increase ticket prices, improve facility utilization, or reduce costs elsewhere. The goal is to cover this \$1.5 million expense while maintaining resort value through a data-driven strategy for optimal ticket pricing.

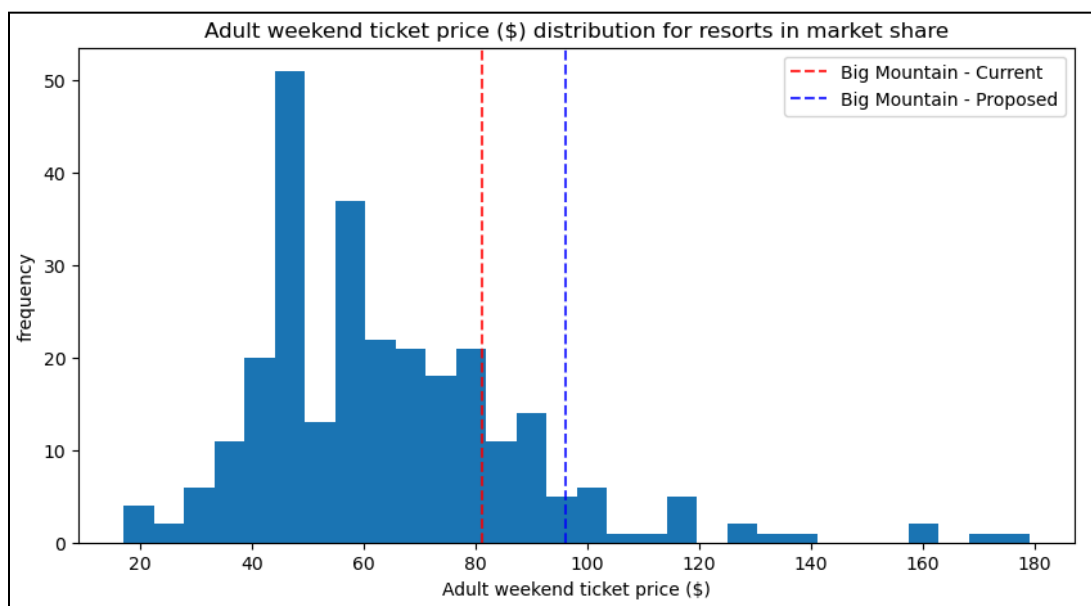
This analysis compares Big Mountain to other resorts based on key features and presents two plausible scenarios for executive consideration.

The initial dataset (U.S. Ski Resorts Characteristics) contained 330 resort entries, including Big Mountain Resort in Montana. After removing entries with missing weekend or weekday ticket prices, 277 resorts remained. We verified and updated outliers for skiable terrain and years of operation through online fact-checking.

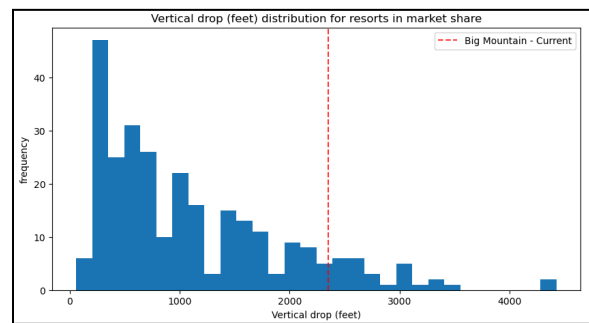
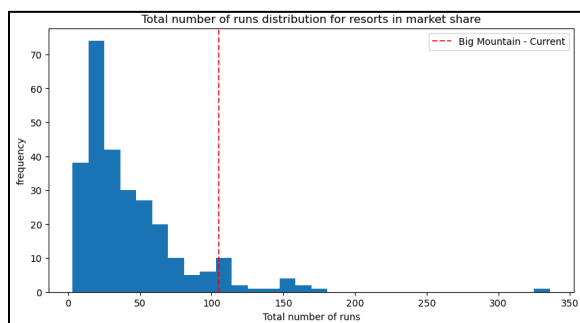
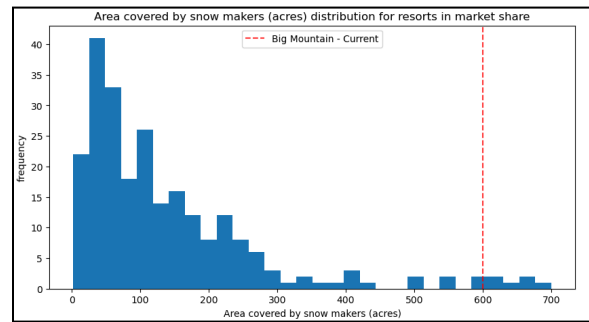
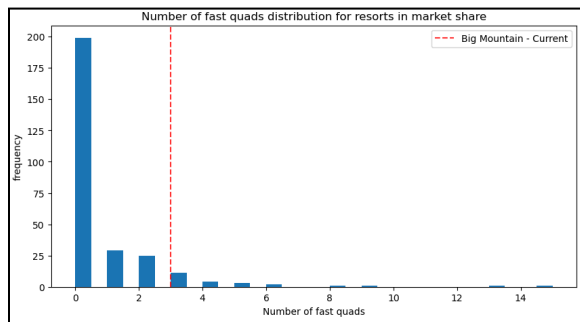
Our exploratory data analysis examined both numerical and categorical features. State-level patterns emerged in ticket pricing—Colorado, Utah, and Vermont showed the highest prices, while Iowa, Illinois, and Ohio had the lowest.

To compare resorts directly, we established a baseline using average adult weekend ticket prices. After testing both mean and median approaches for handling certain missing values, median imputation proved more effective. Analysis of two data models revealed that fast quad chairlifts, number of runs, snowmaking capacity, and vertical drop had the greatest impact on ticket prices.

Our model suggests Big Mountain Resort could increase prices from \$81 to \$96, with predicted ticket prices ranging from \$85 to \$106.



While the proposed ticket price falls in the higher range, this aligns with the resort's key features, which also rank at the upper end of the resorts.



The analysis examined two scenarios for revenue optimization through cost reduction and price increases, based on projections of 350,000 seasonal visitors averaging five skiing days each.

Scenario 1: If operating costs for closing five current runs exceed \$1.2 million, the model suggests a ticket price decrease of \$0.67 could achieve overall cost savings.

Scenario 2: The new chairlift would add one run and extend the vertical drop by 150 feet. The model suggests a \$2.00 ticket price increase, generating \$3.5 million in additional seasonal revenue.

A key limitation of this analysis is the lack of detailed costs for individual runs.

For Big Mountain, some recommendations to consider are historical pricing decisions, local market expectations, and relative operating costs compared to similar resorts. Understanding the original pricing rationale would provide valuable context.

Based on this report Big Mountain should be able to determine how to find the revenue to justify the costs for the new chair lift.