Optimizing Big Mountain's Ticket Pricing to Offset a $1.54M Expansion Cost

Big Mountain Resort

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Presented by

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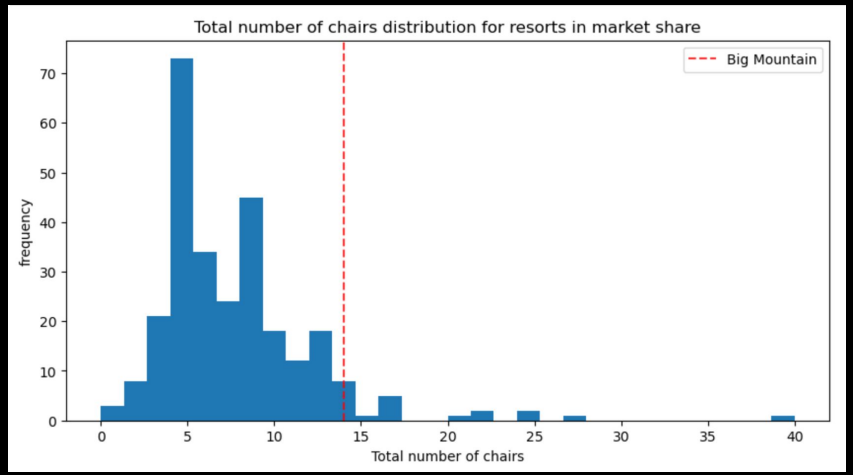
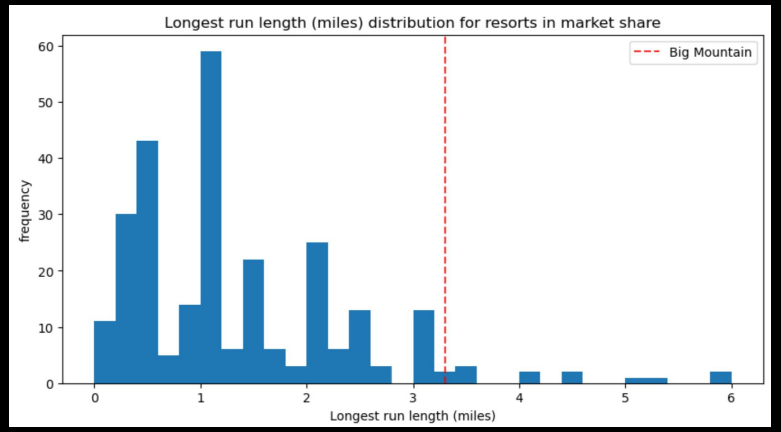
Content

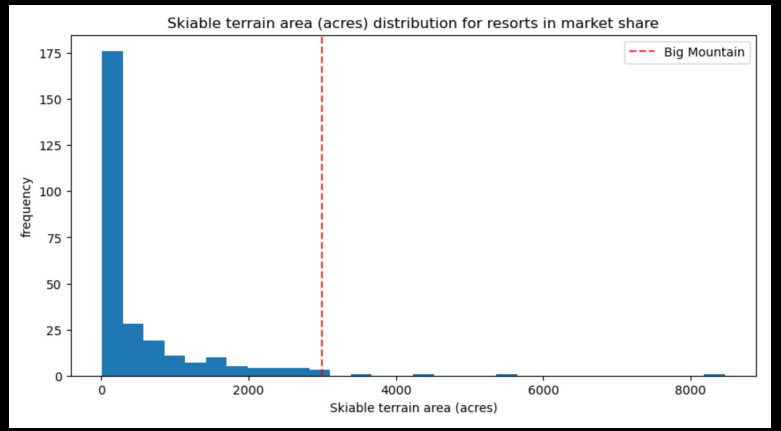
Business Context

Current Ticket Price: $81

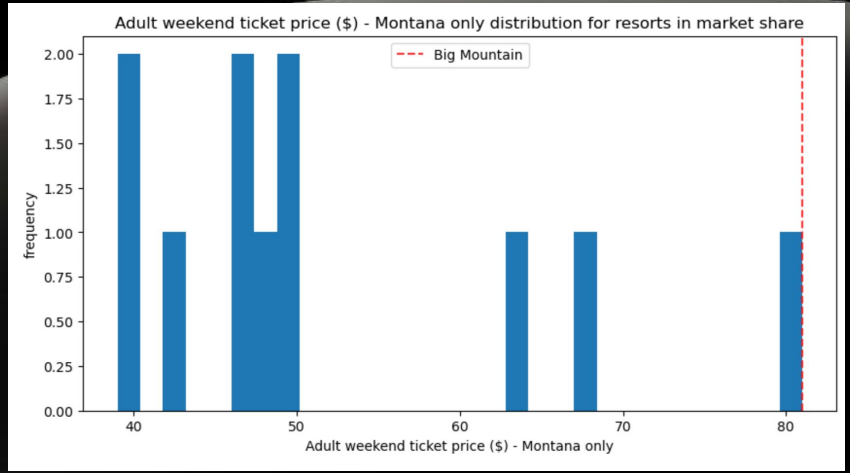
Big Mountain outperforms state competitors and many national resorts in key facility metrics.



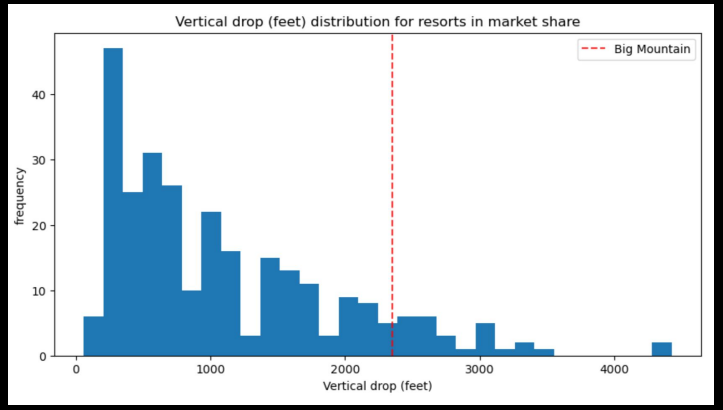


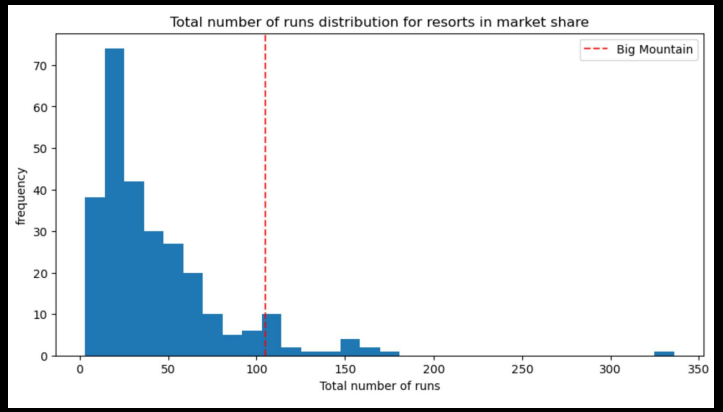


Business Problem



How can Big Mountain Resort offsets the $1.54M cost of the new chair lift this season, while optimizing the resort pricing strategy to reflect Big Mountain's facilities relative to comparable resorts?





What did we find?

Pricing Recommendation: Big Mountain Resort should gradually increase its ticket price to $99.88 to align with market value for similar resorts nationally.

- Pursue Scenario Option 2: Increase vertical drop by extending a run + add one lift without extra snowmaking.
  - Produces greatest expected improvement in willingness to pay
  - Lowest added cost
  - Aligns with top price-driving features

Key Findings:

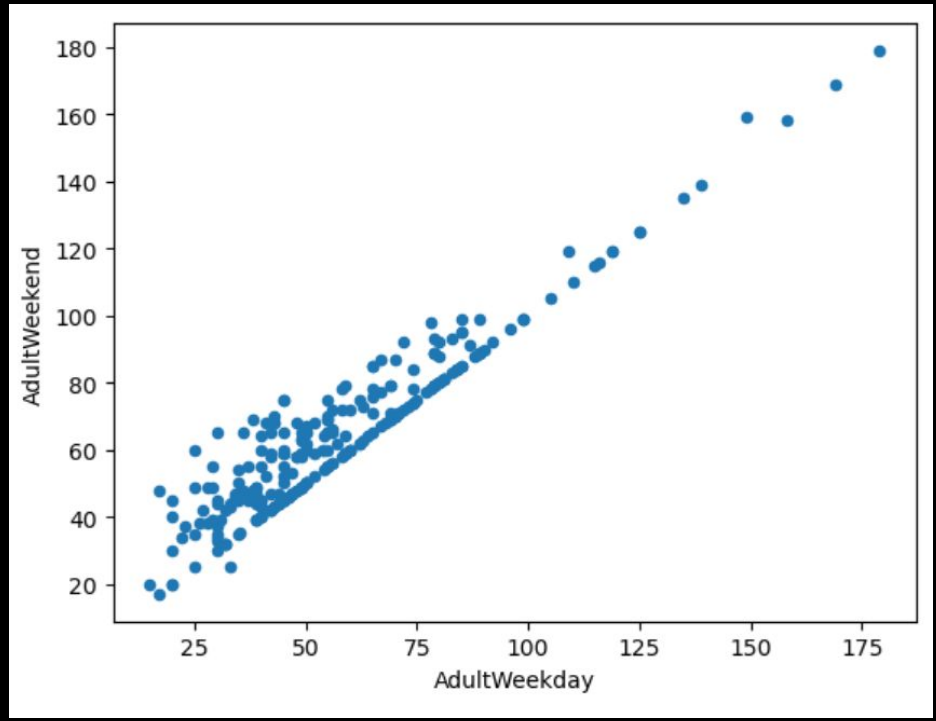
- The key features affecting resort value are quad chair lifts, runs, snow making, and vertical drop.
- Big Mountain Resort is among the top resorts nationally in regards to vertical drop, snow making, total chairs, quad chair lifts, runs, longest run, and skiable terrain.
- Big Mountain is at the highest end of the market in ticket pricing in Montana, but not nationally, indicating region affects pricing.
- A ticket price increase of $1.94 could increase weekend ticket revenue by $3,393,939 alone.
- The model suggests consumers value the number of runs highly, even if usage per run is low.

Data Preparation & EDA Insights

Data Preparation & EDA Insights

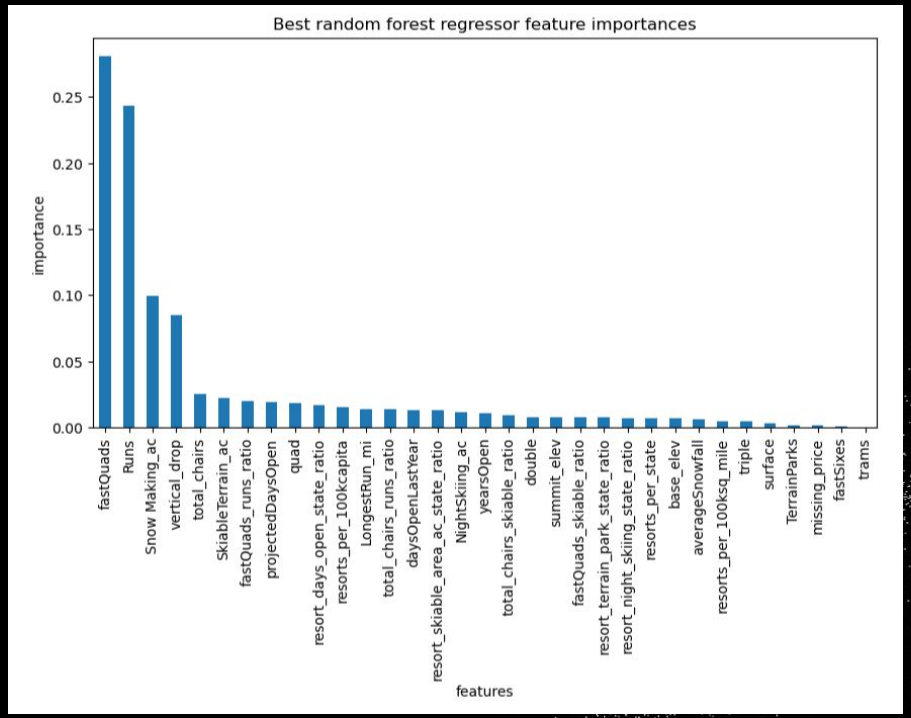
- Removed major inconsistencies and extreme outliers (skiable terrain, years open)
- Weekend prices selected due to lower missingness + stronger correlation with amenities
- Region column unreliable → analysis conducted at national scale
- Confirmed strong relationships between price and facility metrics
- Weekend vs. Weekday price correlation

Learn more



Feature Importance & Drivers of Price

1. Vertical Drop
2. Runs
3. Snow Making
4. fastQuads

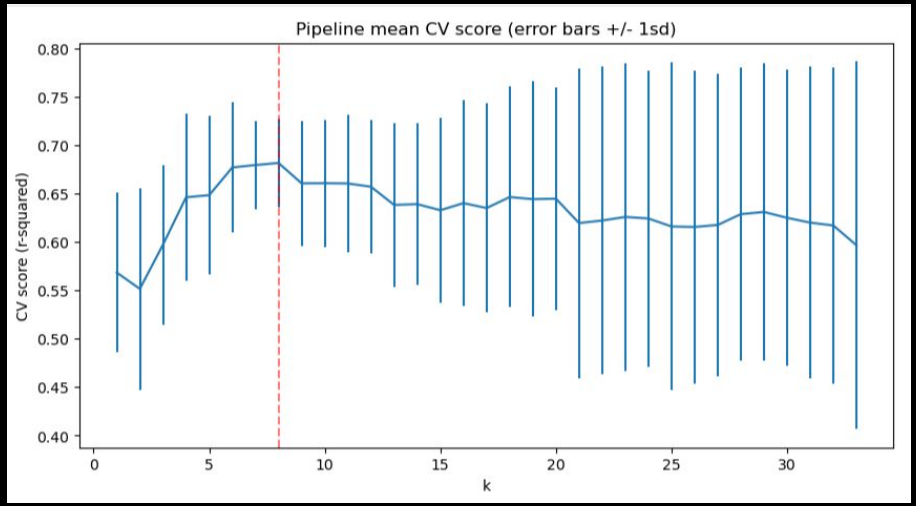


Other insights:

- Terrain size shows a negative coefficient in linear regression, likely due to lift capacity dilution.
- Fast lifts and snowmaking significantly increase perceived value.

Model Performance & Validation

- Random Forest Regressor selected as final model
  - Lowest cross-validation MAE
  - Lowest variance
  - Test-set performance consistent
- Linear Regression (k=8) performed reasonably but showed more instability
- Random Forest more robust for nonlinear relationships in amenities data

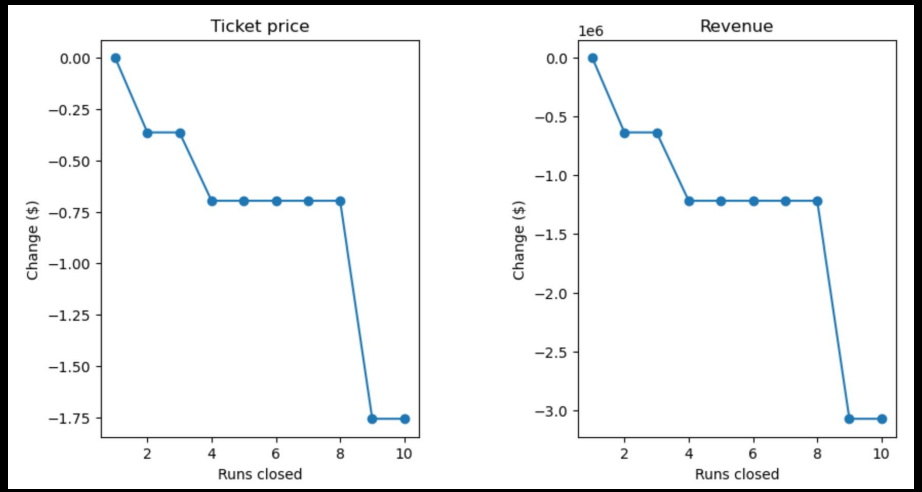


Scenario Modeling Insights

Evaluate four proposed improvement options (runs, snowmaking, terrain, lifts):

Most effective:

- Option 2: Add a lift + extend vertical drop (~150 feet)
  - Highest expected willingness-to-pay increase
  - No need for additional snowmaking
  - Best cost-benefit ratio
- Least effective:
  - Closing runs reduces price perception
  - Increasing snow coverage alone showed no meaningful effect
  - Terrain expansion without lift support can lower perceived value



Final Remarks

Summary

- Big Mountain is undervalued at $81 given national competitor benchmarks.
- A data-driven modeled ticket price is ~$100, even with conservative error margins.
- Random Forest confirms strong influence of:
  - Vertical drop, snowmaking, fast lifts, runs
- Scenario analysis supports Option 2 as the revenue-maximizing improvement.

Conclusion

Adopting the recommended price increase and Scenario 2 improvement positions Big Mountain to **offset the $1.54M lift cost** while aligning ticket prices with true market value and guest expectations.