Big Mountain Resort

Price-Cost Analysis

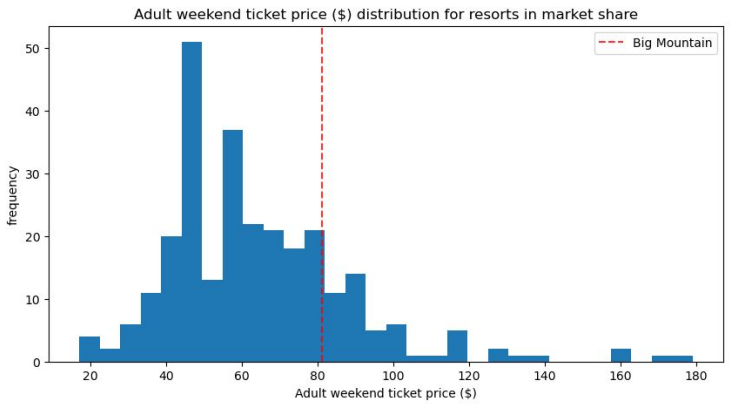
Current Pricing Landscape

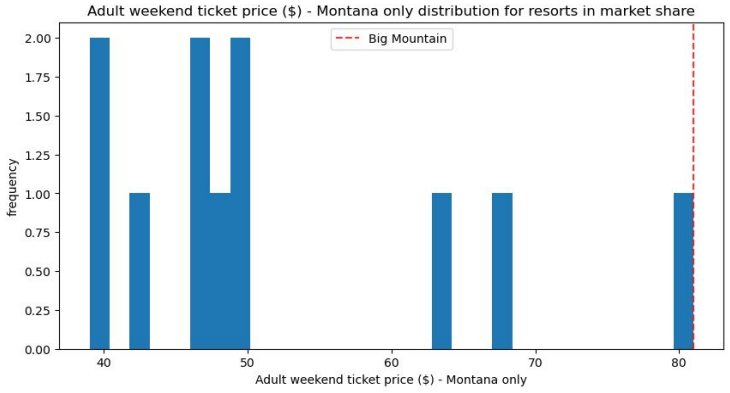
Big Mountain Resort's adult weekend ticket is currently set at $ 80.

That price puts us at the top end among Montana resorts yet below many national competitors with similar terrain and lift infrastructure.

Meanwhile we have invested in a new high-speed chair lift that adds roughly $ 0.30 of operating cost per ticket (assuming each guest buys a five-day package).

- Current price: $ 80 (Montana leader, national middle)
- New chair lift adds $ 0.30 cost per ticket
- Key question: Can we raise price to cover costs without reducing revenue or guest satisfaction?





Before jumping into analysis, we clarified the executive priorities and the specific questions our modeling must answer:

Revenue Protection:	How do price changes interact with demand and annual revenue?
Cost Recovery:	What ticket increase covers the new lift expense?
Operational Levers:	Can we adjust operations (for example closing under-used runs) to support a higher price?
Risk Management:	Which scenarios pose minimal downside and how do we pilot them?

Executive Recommendation & Key Findings

Based on our analysis we propose an adult weekend ticket of $ 85 and a pilot closure of 1–2 low-usage runs. This change covers the new lift's cost, aligns us with peer pricing, and preserves or slightly increases total revenue.

Potential Recommendations

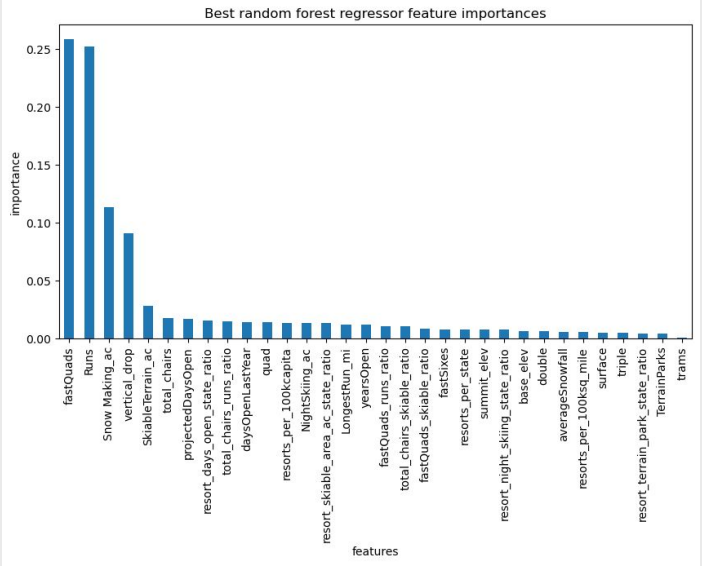
Move from the current $ 80 adult weekend ticket to $ 85:
Big Mountain should raise the adult weekend ticket from eighty to eighty-five dollars. That five dollar increase more than covers the roughly thirty cent per-ticket cost of the new chair lift and brings us in line with similar resorts.

Pilot run closures: 1–2 runs next season:
Next season we should close one or two under-used runs as a pilot. Shutting down those low-traffic runs cuts costs and immediately supports a sixty to eighty cent bump in the model's suggested ticket price even before the full five dollar increase.

Revenue impact: neutral to + 1 percent under pilot scenario:
Overall lift-ticket revenue is projected to remain within one percent of its current level when we combine the price increase and the run closures.

Model Selection & Validation

We compared a linear regression pipeline against a random forest pipeline using five-fold cross-validation and an 80/20 hold-out test split.



Linear Regression

- Median imputation, scaling, optional feature selection
- CV RMSE ≈ $ 15, $R^2 \approx 0.60$
- Test RMSE ≈ $ 15, $R^2 \approx 0.58$

Random Forest

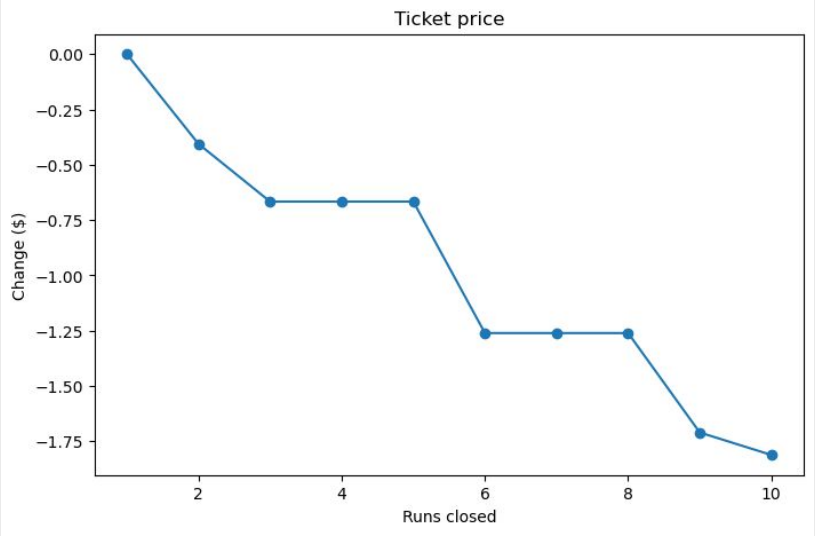
- Median imputation, scaling, one-hot Region, tuned tree parameters
- CV RMSE ≈ $ 12, $R^2 \approx 0.70$
- Test RMSE ≈ $ 12, $R^2 \approx 0.68$

Random forest chosen for its superior accuracy and stability.

Impact of Run Closures on Ticket Price

Using the random forest model we simulated closing 1–10 under-used runs and asked “what ticket price would the market support?”

- Closing 1 run → no change in supported price (baseline).
- Closing 2 runs → price support drops by $0.40.
- Closing 3–5 runs → price support drops by $0.70.
- Closing 6–8 runs → price support drops by $1.25.
- Closing 9 runs → price support drops by $1.75; 10 runs → $1.78 drop.



This clearly shows that any run closures only erode the price guests are willing to pay, so broad closures are counterproductive to our revenue goals.

Impact of Run Closures on Annual Revenue

Lower supported prices translate directly into revenue losses. Under the five-day ticket assumption, each closure drives a predictable drop in annual ticket revenue.

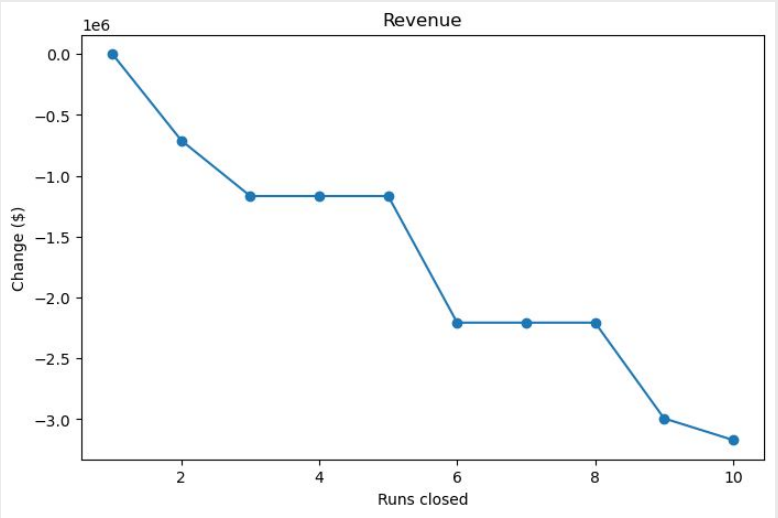
Closing 1 run → no change in revenue (baseline).

Closing 2 runs → revenue down by $ 0.75 million.

Closing 3–5 runs → revenue down by $ 1.25 million.

Closing 6–8 runs → revenue down by $ 2.2 million.

Closing 9 runs → revenue down by $ 3.0 million; 10 runs → $ 3.2 million drop.



The steep revenue declines after just a few closures confirm that limiting any run shutdowns to at most one is critical if we want to maintain or grow ticket sales.

Pricing to Cover Chair Lift Cost

We examined the total lifecycle cost of the new high-speed chair lift, including its upfront capital investment spread over its useful life as well as ongoing maintenance, staffing, and power expenses, and translated that into an incremental per-ticket cost. Under our sales volume assumptions, that comes out to roughly thirty cents more for each adult weekend pass. Raising our ticket from eighty to eighty-five dollars not only absorbs this added expense but also aligns us with comparable resorts’ pricing.

This price bump delivers a meaningful margin cushion, ensuring we can cover the lift’s cost every season and still have extra funds available for future maintenance or guest-experience improvements. Because our random forest model indicates that the market comfortably supports a mid-eighties price point with minimal impact on volume.

By setting the adult weekend ticket at $ 85, we fully fund the new lift and secure additional margin without risking a drop in demand.

Key Topics for Executive Discussion

Conclusion and Next Steps

1

Summary of Key Findings

We found that an $ 85 adult weekend ticket aligns with peer resorts, covers the new lift cost, and keeps revenue stable.

Does this conclusion match your strategic priorities for facility investment?

2

Pricing Recommendation

Raising the ticket from $ 80 to $ 85 funds the new chair lift incremental cost and leaves margin for future improvements.

How do we phase in this price change to ensure customers don't respond negatively?

3

Run Closure Impact

Model simulations show any closure of runs reduces the price guests are willing to pay and inhibits revenue

Should we reconsider any other operational inhibitions besides run closures?

4

Implementation & Next Steps

We will launch the new price, monitor daily sales and satisfaction, collect additional cost data.