**Casual Inference - Project Proposal**

Matan Solomon - 209339894  
Barbara Aleksandrov – 337844252

Research Question:

How does having a snow park affect the ski resort ticket prices?

A snow park is a specially designed slope featuring jumps, rails, ramps, and other freestyle elements for skiers and snowboarders. Resorts can choose whether to build and maintain a snow park, making this feature particularly suitable for a causal study, as it represents a deliberate business decision rather than a fixed characteristic.

Background:

Skiing and snowboarding represent a global industry generating billions of dollars annually, with over 3,000 resorts operating across Europe, North America, and Asia. Despite its popularity, ski resorts face unique economic challenges due to the short and unpredictable nature of the ski season. Most resorts can operate only when snow depth reaches at least 50–100 centimetres, typically limiting the active season from mid-December through late March. Resorts located at higher altitudes may enjoy slightly longer operational periods.

Because of this narrow window, resorts must maximize their income in a very short time. Lift tickets become the primary revenue source, and resort management carefully sets prices to achieve maximum profit without discouraging potential customers. Ticket prices vary significantly, from roughly twenty dollars to over two hundred and fifty dollars per day. Many observable factors influence these prices, including the number and speed of lifts, the extent of snow-making facilities, the overall skiable terrain, altitude, and the proportion of expert-level trails. Among these factors, the decision to operate a snow park is an intentional strategic choice. However, not all resorts offer a snow park, and its direct impact on ticket pricing remains unclear.

Existing Knowledge:

Previous research has extensively documented the relationship between ski-resort characteristics and lift-ticket prices. However, these studies typically overlook snow parks as a factor. For example, a comprehensive study from 2021 on U.S. ski resorts identified that lift ticket prices are strongly influenced by measurable attributes such as summit altitude, number of lifts, snow-making capability, total skiable acreage, and the percentage of advanced trails. Remarkably, these factors alone explained about ninety percent of the variations in ticket pricing across different resorts [1].

Another influential study, conducted in 2008, analyzed Austrian ski resorts. This research similarly found a positive and significant connection between lift ticket prices and factors such as length of ski runs, availability of modern high-speed lifts, snow-making capabilities, high altitude, longer ski seasons, and joint-ticket options with neighbouring resorts [2]. Nonetheless, despite these detailed examinations, neither of these influential studies considered the presence or absence of snow parks. Therefore, there remains a notable research gap regarding how snow parks specifically influence lift-ticket pricing.

Dataset We Will Use:

To fill this gap, we plan to combine two comprehensive datasets:

The first dataset, available on Kaggle, includes detailed information from approximately five hundred ski resorts worldwide. Important variables include the binary indicator for snow park availability, posted day-ticket prices, the number of lifts, trail details, and snow-making capacities: <https://www.kaggle.com/datasets/ulrikthygepedersen/ski-resorts>

The second dataset, from Rank-Tank, aggregates skier reviews to provide popularity ratings for roughly three thousand ski resorts. Although it offers valuable popularity insights and basic resort information, it does not include snow park availability. By cross-referencing the Kaggle dataset with Rank-Tank, we will integrate snow park data with the broader review-based rating information:  
<https://rank-tank.com/ski-resorts>

Our initial exploration of the data reveals a surprisingly negative correlation between snow park presence and ticket price, warranting deeper analysis.

Outcome Variable - Price

We have selected the posted day-ticket price as our main outcome measure because, in a competitive market, prices typically reflect the perceived value of a product or service. Economic theory suggests that firms maximize profits by setting prices at the highest point customers are willing to pay. Thus, if visitors perceive a ski resort to offer superior amenities—such as longer seasons, better lifts, or engaging features like snow parks—they will generally be willing to pay higher prices. Conversely, if features like snow parks attract a younger or more price-sensitive audience, ticket prices might adjust downward.

This economic logic is supported by broader research into "experience goods," where customers rely on indirect quality signals to inform their willingness to pay. For instance, Ashenfelter demonstrated in a notable study on Bordeaux wines that wines produced in warmer, drier years achieve significantly higher auction prices, clearly indicating that buyers pay attention to perceived quality indicators—even those beyond producers' direct control [3]. Similarly, the previously mentioned U.S. ski resort study reinforced this point, demonstrating that objective resort characteristics reliably predict pricing, aligning closely with consumer preferences[1].

To further validate our results, we plan to cross-check our pricing analysis with resort popularity rankings obtained from Rank-Tank. This additional step ensures robustness and provides context for interpreting our causal findings, allowing us to determine whether resorts with snow parks achieve higher overall popularity despite potentially lower prices.

References:

[1] Murphy, Jared. "Quality Analysis of Lift Ticket Prices in the United States Using Logistic Regression." Empirical Economic Bulletin, 14(1), 2021.

[2] Malasevska, Iveta, and Erik Haugom. "Optimal Prices for Alpine Ski Passes." Tourism Management, 64, 2018, 291–302.

[3] Ashenfelter, Orley. "Predicting the Quality and Prices of Bordeaux Wine." The Economic Journal, 118(529), 2008, F174–F184.