Snow Guaranteed! Skiers' Willingness-to-Pay for Refund Guarantees

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INTRODUCTION

Ski resorts have strong incentives to promote the sales of season pass because of the benefits of earlier realization of cash flows and more predictable demand. However, risk of poor snow condition could hinder skiers' willingness to purchase season pass. We propose a refund guarantee that is financed by put options on snowfall index for promoting season passes. For simplicity, we name it Snow Guaranteed. To examine the feasibility of this offering, we will estimate skiers' willingness-to-pay (WTP) for the guarantee using conjoint analysis and compare it to the value derived from Black-Sholes option pricing model. If skiers' WTP for the guarantee is higher than the premium of put options, ski resorts stand to receive additional revenue from selling the guarantee, which could also increase the demand of season passes and customer satisfaction.

Skiers, however, might hesitate to purchase season passes because for the fear of paying for a season of poor snow condition. This perceived risk plays a dominant role in decision making because consumers are more motivated to avoid mistakes than to maximize the utility in purchasing (Mitchell 1999). If the risk associated with an offering is perceived as unacceptable, all other factors (price, time, etc.) might be ignored. Season passes fall into the category of high perceived risk offerings for several reasons. First, skiing experience is intangible, which increases the perceived risk (Lwin and Williams 2006). Second, as any recreational activity, skiing carries a lot of psychological involvement. Third, season passes can be expensive (i.e. the rack rate is $1,899 at Vail). As Bonn, Furr and Susskind (1999) indicate, most consumers perceive high risk in offerings that require substantial financial and psychological investments. Finally, the main factor in determining the tourism experience in a ski resort is snow condition, which is a pure exogenous risk that is beyond human control.

To reduce their perceived risk, consumers attempt to increase the certainty of their desired consequences of their decisions (Mitchell 1994). Dowiling and Staelin (1994) also argue that facing purchase under high risk and uncertain conditions consumers tend to seek risk relievers and actively engage in uncertainty reducing activities to lessen their feeling of discomfort. One of the top-rated risk relievers is guarantees that reduce the amount potential loss (Kunze and Mai 2007). Therefore, refund guarantees could perform an important function for skiing operators by serving as a persuasive sales variable that reduces uncertainty of snow condition and encourages season pass sales (Lwin and Williams 2006).

To examine the feasibility of the innovative marketing proposal, our main goals are to estimate the amount skiers are willing to pay for this guarantee and compare it to the cost of the required financial product, put options on local snowfall index.

Willingness to pay is the maximum price a buyer is willing to pay for a given quantity of good. Therefore, it is a useful tool to estimate the value perceived by consumer about a novel product that has not existed on the market, such as the guarantee proposed in this study (Wertenbroch and Skiera 2002). To elicit consumers' WTP, three types of data are often used: actual transaction data, experimental data, and survey data. Since the first two types of data require the existence of the products or services, we have to resort to survey data. There are two popular methods for estimating WTP from survey data: contingent valuation (CV) and conjoint analysis (CA). In the present study, we adopt CA because of the benefits from its more defined elicitation process. First, it eases the mental burden of respondents by providing the relevant attributes of the product that are important for decision making (Telser and Zweifel 2002). Second, it provides information about the relative importance of attributes and the levels within a single attribute (Green and Wind 1975). Third, it could prevent respondents from presenting their preferences based on different reference frames as indicated by Hoffman, Menkhaus, Chakravarti, Field, and Whipple (1993).

METHODS

We include only resident skiers in the sample because destination skiers are very unlikely to purchase season passes. Also, resident skiers account for the majority of lift ticket sales (Perdue 2002). We also limited our sampling in a specific region because (1) the prices of season pass vary widely from $200 in Eaton Mountain, Maine, to $1,899 in Vail, Colorado, and (2) the price derived from Black-Sholes model is contingent on snow distribution, which is highly localized. To reduce the variability of prices and snow conditions, we choose Colorado Front-Range market as the sampling region because the market is dominated by only a handful of major ski resorts.

For CA procedures, four preliminary attributes of Snow Guaranteed are identified: coverage, the level of snowfall that triggers a refund, the amount of refund, and price. The levels of attributes are defined as in Table 1.

The amount of refund is the multiples of the average daily lift price at Vail Resort to represent to value of lost skiable days. The prices of Snow Guaranteed span the amounts of discount Colorado ski resorts give to skiers when they purchase multi-day lift tickets. The discount represents the value of longer-stays over the sum of multiple single-day visits from a ski resort's viewpoint. In other words, it is the cost for a skier buys a multiple single-days ticket instead of a single multi-day ticket. Therefore, it is used as the proxy for the value gain of a skier for purchasing season pass and it should be the maximum amount the skier is willing to pay to protect the season pass.

With the number of attributes and levels, the number of all possible scenario combinations is 480 (= 6 x 4 x 4 x 5). Obviously, it would be extremely costly and time consuming to run an experiment based on scenarios. Therefore, we will run a pre-test the eliminate unimportant attributes or levels as in Telser and Zweifel (2002). Then we will adopt orthogonal array to further reduce the number of possible scenarios while still being able to infer the utilities (Telser and Zweifel 2002). We expect the final number of combinations can be reduced to the 20s range.

Table 1. Four Attributes of Snow Guaranteed.

Attributes	Label	Levels
Coverage	CVER	December January February March December & March December and January
Refund Trigger	TRIG	5% below historical average 10% below historical average 20% below historical average 30% below historical average
Amount of Refund	RFND	$90 $180 $270 $360
Price	PRIC	$10 $20 $50 $100 $200

Then all scenarios are presented to respondents one by one on a card. With each scenario, respondents simply decide whether or not they would buy the product and the answers are recorded as a purchase dummy variable. An example is shown in Table 2. The collected data will then be run on a probit model with purchase decision being the dependent variable. Then the marginal willingness to pay (MWTP) for each attributes can be calculated as the ratio of the price variable coefficient to the attribute variable coefficient (Telser and Zweifel 2002).

Table 2. Example of a card presented to respondents.

Snow Guaranteed 1 Please answer "Yes" or "No" if you will buy this refund guarantee for poor snow condition.	
Coverage You will receive a refund if snow condition is poor in December.	*Refund Trigger* You will receive a refund if the actual snowfall is 5% below historical average.
Amount of Refund You will receive $90 for the refund.	*Price to pay* You have to pay $10 for this refund guarantee for poor snow condition.

To measure the maximum additional demand that could be brought by the refund guarantee, we also ask the skiers if they bought season passes this season and whether they would purchase the season pass if a refund guarantee is offered for free. The answers to these two questions and

control variables will be pooled together and estimated by a probit model with purchase decision being the dependent variable and guarantee offering dummy and control variables as the explanatory variables. Control variables include both resort characteristics and skier characteristics identified by Echelberger and Shafer (1970), Mitchell (1994), and Perdue (2002). Among the characteristics, the availability and quality of snow (Echelberger and Shafer 1970), price of season ticket (Mitchell 1994), and the years of skiing experience (Perdue 2002) are considered as the predominant determinants.

To compensate this downside risk, ski resorts have to buy put options on snowfall index. With slighted adjustment, the widely used Black-Sholes option pricing model can be used to calculate the value of put options. Specially, stock prices are substituted by the amount of snowfall and stock return distributions are substituted by accumulated snowfall distributions.

EXPECTED FINDINGS AND POTENTIAL APPLICATIONS

The results of this study will help ski resort managers to evaluate the feasibility of our refund guarantee proposal. Specifically, with the information of consumers' WTP on each attribute of this refund guarantee, ski resort operators can design an offering that is most attractive to skiers. Knowing the cost of put options, managers can also estimate the optimal pricing strategy for the refund guarantee by maximizing the gross profits contingent on price under the constraint of WTP. Therefore, we expect this promotion to be feasible financially and can increase the demand of season pass. Even if the guarantee is offered for free, ski resorts might still come out ahead because of the indirect benefits such as increased demand of season passes and customer satisfaction and loyalty. Smaller individual ski areas are expected to benefit most from this study because most of their customers consist of resident skiers.

Although the present study focuses on the WTP for the Snow Guaranteed program; the results have broad implication for tourism product developers. First, the results could provide insights on consumers' WTP for risk reduction in tourism product purchases. Second, the information on the value and relative importance of attributes is useful in designing and bundling lower risk products with the potential to improve demand and customer satisfaction.

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