**Homework 3: Pricing Analytics**

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**Case & Data:**

Zach wanted to know how people would respond if he starts to collect an entrance fee for his popular concert hall “Zach’s Garage”. He also has no idea how much he should charge, whether he should offer a student discount, or keep his concert hall free for students, and etc. Please use the analyses learned in class to help Zach finding answers to these questions.

Using the “ME-XL/Pricing/Run Analysis” option in the menu, and using the purchase likelihoods reported in the spreadsheet, answer the following questions:

*Hint: to make this assignment simpler, you DO NOT need to round the optimal price up or down to a realistic price point. Simply use the optimal price point provided by the ME-XL Pricing Model is sufficient.*

**Question 1 (10 points):** Assuming that the survey data contain a representative sample of Zach’s Garage’s customer base, at what price level would Zach maximize expected profit per month? Assume that the maximum capacity of Zach’s Garage is about 250 per night, with an average of 12 events per month. And Zach’s monthly cost is $3,000. What would be the total monthly attendance under this pricing strategy? What would be Zach’s expected profit per month under this pricing strategy?

*Hints: a) Please make sure that you use the following relationship between the Likert Scale and Associated Probabilities in your calculations. These are based on Zach’s estimates.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Scale Options** | 1 | 2 | 3 | 4 | 5 |
| **Associated Probabilities** | 0% | 0% | 10% | 40% | 100% |

*b) The total market size (per month) is: 250 (average attendance per night)\*12 (average number of concerts per month) = 3,000.*

*c) To compute total expected revenue, use the formula TOTAL MARKET SIZE \* LIKELIHOOD OF PURCHASE \* PRICE.*

The likelihood of purchase and expected revenues for all tested price levels are listed below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Price Levels** | 1 | 3 | 5 | 8 | 12 | 20 | 3.578 |
| Likelihood of Purchase | 86% | 52% | 29% | 12% | 3% | 0% | 44% |
| Expected Revenues | 0.86 | 1.56 | 1.47 | 0.94 | 0.39 | 0.05 | 1.59 |

Table 1

We can conclude from the table that at the price level of $3.578 Zach would maximize expected profit per month and the likelihood of purchase at this price level is 44%. Based on the assumption in the question, the total monthly attendance under this pricing strategy is 250\*12\*44% = 1320, and the expected profit per month would be 1320\*$3.578-$3,000 = $1,722.96

**Question 2 (10 points):** Zach does not want to lose the youngest customers, who are often students. Assuming that he does not charge an entrance fee to people 21 or younger, what would be the optimal pricing strategy to maximize his profit? What would be the total monthly attendance under this pricing strategy? How much would Zach’s profit be at this price? Would Zach be able to breakeven?

*Hints: a) Sort respondents by age, and apply the pricing model on those customers 22 years of age or older only.*

*b) When computing total profit, note that a portion of the total expected market will pay no entrance fee. Assume that 1/3 of the attendees are 21 years old or younger.*

Table 2 shows the likelihood of purchase and expected revenues for all tested price levels when we assume that he does not charge an entrance fee to people 21 or younger:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Price Levels** | 1 | 3 | 5 | 8 | 12 | 20 | 3.856 |
| Likelihood of Purchase | 93% | 59% | 35% | 15% | 4% | 0% | 48% |
| Expected Revenues | 0.93 | 1.78 | 1.76 | 1.19 | 0.53 | 0.07 | 1.84 |

Table 2

Under this situation, the optimal pricing to maximize his profit is $3.856. Also, assuming that seats at the price level of 0 will all be filled, the total monthly attendance would be 250\*12\*1/3 + 250\*12\*2/3\*48% = 1960, and the expected profit per month is 250\*12\*2/3\*48%\*$3.856-$3,000 = $701.76. Zach would be able to breakeven.

**Question 3 (10 points):** Assume that instead of allowing the youngest customers to attend for free, Zach also considers the option of charging a lower price to people 21 or younger by offering a discount. At what price would Zach maximize revenue from the younger segment of the population? What would be the total monthly attendance under this pricing strategy? Compare the uniform pricing strategy in Question 1, how much additional profit would this two-tier pricing plan bring in?

Table 3 shows the likelihood of purchase and expected revenues for all tested price levels when only including customers who are 21 or younger:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Price Levels** | 1 | 3 | 5 | 8 | 12 | 20 | 2.818 |
| Likelihood of Purchase | 72% | 38% | 17% | 5% | 1% | 0% | 40% |
| Expected Revenues | 0.72 | 1.13 | 0.87 | 0.39 | 0.10 | 0.00 | 1.13 |

Table 3

At the price of $2.818, Zach would maximize revenue from the younger segment of the population. Under this pricing strategy, the total monthly attendance would be 250\*12\*1/3\*40% + 250\*12\*2/3\*48% = 1360, and the expected profit per month is 250\*12\*1/3\*40% \*$2.818 + 250\*12\*2/3\*48%\*$3.856 - $3,000 = $1,828.96. Compare the uniform pricing strategy in Question 1, this two-tier pricing plan would bring in an additional profit of $1,828.96 - $1,722.96 = $106