Case 6 Solution

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Winter 2020

Interactions with features and displays

1. Suppose we thought that consumers did not respond to price changes. Would we charge high prices or low prices?

   If consumers do not respond to price changes, we would tend to charge high prices. Increasing our price does not decrease sales, but it does increase the profit margin.

2. Suppose we thought that consumers were extremely sensitive to price changes. Would we charge high prices or low prices?

   If consumer do respond to price changes, we would charge a lower price to increase demand.

Interactions with features and displays

Discussion Questions:

1. The above code *controlled for* features and displays, but it did not figure out the optimal price when a feature or display is on. Do you expect the optimial price to be higher or lower when the product is featured? What in the analysis tells you that?

   The optimal price will be lower, as the marginal impact that a price change has is higher when a feature is present. The interaction coefficient between features and prices being negative tells us that.

2. Modify the code to calculate the optimal price when a feature or display is present

   You would set isFeature or isDisplay to true when generating predictions of demand. This was done in the case.

Pricing and Omitted Variables Bias

Discussion Questions:

1. In our analysis in the previous section, we did not control for time of year. If the price of soup is higher during winter, how will our estimate of the price coefficient be biased? Given that bias, will we get too low of a price or too high of a price?

   Winter would have a positive correlation with prices, and a positive correlation with sales. Therefore, since we omit this factor, our estimate is biased upwards. This means that we think prices have less of an impact than they actually do. Therefore, we charge too high a price.

2. What if instead prices are lower during winter?

   Winter would have a negative correlation with prices, and a positive correlation with sales. Therefore, since we omit this factor, our estimate is biased downwards This means that we think prices have more of an impact than they actually do. Therefore, we charge low high a price.