Restaurant Price Level and Customer Satisfaction

Case Study by Eleanor Byrd

DS 4002 5/9/2025

Motivation:

      Yelp is a well-known online platform that allows users to discover, rate, and review local businesses. The business profiles contain information like name, category, address, price level, and an overall rating, opportunities to interact with the business like making a reservation or requesting a quote, and an abundance of customer reviews. As of December 31, 2024, the platform had amassed 308 million reviews, and the restaurants were the second most reviewed category of businesses [1]. In previous studies, it has been shown that an increase in stars in a business's Yelp rating results in an increase in revenue for that business [2]. This is interesting, but Yelp reviews contain more than just star ratings. They also contain text reviews written by the customers that contain more information about their experience. In large cities, there is usually a broad range of restaurants catering to all price points, so this case study is an opportunity to explore the dynamic between restaurant price level and customer satisfaction.

Deliverable:

      You are a data scientist hired for a restaurant group in Philadelphia who has acquired a location for a new restaurant. You are tasked with providing data-driven insight into what type of restaurant the group should open. You must determine whether the price level of a restaurant is correlated with the average sentiment of customer reviews. This will help the owners of the restaurant group determine what price level of restaurant would be successful and appreciated by customers. You will first use sentiment analysis in order to determine if a customer's review is more positive or negative, and then calculate the average review sentiment for each restaurant. Then you will use correlation analysis to determine if a specific price level correlates with more positive customer review sentiment.

Github Link: https://github.com/rvt9bx/DS4002-CS3

[1] "Yelp - Company - Fast Facts," Yelp-press.com, 2024. [Online]. Available: https://www.yelp-press.com/company/fast-facts/ (Accessed May 4, 2025).
[2] Luca, Michael, "Reviews, Reputation, and Revenue: The Case of Yelp.Com" (March 15, 2016). Harvard Business School NOM Unit Working Paper No. 12-016, Available at SSRN: https://ssrn.com/abstract=1928601