New York City Food Venues Analysis

Peiwen Liu

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Introduction

As many might not expect, the restaurant industry in New York City has been suffering for a while. Despite the large population of New York City (6% of the total population in the US), there were only around 27,000 restaurants (4% of the total restaurants in the US) by 2018 (Statista, 2019).[1] This number had not increased much since 2013 due to the intense competition and slim profit margin. Worse enough, as the increase of minimum wage (from $10.50 in 2016 to $15 in 2019) which resulted from the victory of "Fight for $15" labor movement, the restaurants jobs in New York City decreased by 5,900 (3.4%) in 2018 (David, 2019). As the outbreak of the COVID-19 pandemic, survival of restaurants in New York City becomes undoubtably even tougher. Although consumer rating is not the sole factor that determines the survival of a restaurant, it does positively correlate with survival. For example, although the increase of minimum wage decreases the overall survival of restaurants at city level, 3.5-star (out of 5) restaurants are 14% more likely to exit the market as $1 increase in minimum wage while 5-star restaurants are largely unaffected (Luca and Luca, 2017).[2] In addition, high-quality restaurants with higher ratings benefit from the increased Yelp exposure (i.e., 7-19% more likely to survive) but low-quality restaurants with lower ratings are undermined by the increased Yelp (i.e., 7-19% more likely to exit the market) (Fang, 2019).[3]

Therefore, it is critical for restaurant owners and investors to understand customer rating which can further interact with other factors and jointly predict the survival of a particular restaurant. Using a uniquely constructed dataset, this project aims to understand the correlations between customer rating and several other factors such as the number of customer rating, deviation of customer rating. Furthermore, this project explores the aforementioned relationships not only at city level, but also at food category level (e.g., bar, bakery, café) and price level and reveals several interesting findings. For example, the correlation between customer rating and number of customer rating is stronger for hedonic food category than for utilitarian food category. Also, this correlation is stronger for higher price tiers than for lower price tiers.