Using Zomato Data To Recommend Improvements In Restaurant Reviews

## Introduction

Online reviews and ratings are increasingly gaining weight as the most important indicator for users to visit a restaurant (Srinivasan 7). Zomato is a restaurant discovery and review service that also provides online ordering and online table booking to its users. In ‘Technology And Dining Out 2015’ by OpenTable, 60% of restaurant goers read online reviews on websites like Zomato before going out to a meal. Among these restaurant goers 33% will not go to a restaurant that has a rating lower than 3 stars. Traditionally restaurant innovation focuses on in-store services like offering trending food, entertainment or special events. In an increasingly online world where restaurant ratings can determine visits, this paper tries to explore how restaurants can improve their ratings by improving customer experience using Zomato’s services.

Zomato is one of the most popular restaurant review and rating websites in India (Dalal). Their mobile application makes it easy for users on-the-go to find local restaurants. Zomato also provides online ordering that allows users to pay for food deliveries through the mobile app and website. Another feature that Zomato offers is online table booking that users can use to make dining reservations. Restaurants listed in Zomato are rated between 1 star and 5 stars by a user. When a user rates a restaurant they are not required to also review the restaurant. This paper analyses data from the Zomato API to better answer some questions about the restaurant industry in New Delhi, Gurgaon and Noida in India.

## Goal

The goal of this paper is to analyse the impact of in-app services like online ordering and online table bookings and the effect of a restaurant marketing itself as multi cuisine as opposed to single cuisine on overall restaurant rating.

## Data

The data was downloaded from Kaggle (https://www.kaggle.com/shrutimehta/zomato-restaurants-data) and analysed in R. The parameters used in this analysis are Restaurant City, Locality, Cuisine, Table Booking Available, Online Delivery Available, Aggregate Rating, Rating Text and Votes.

## Data Preprocessing

The data in this paper is from restaurants in New Delhi, Noida and Gurgaon which together form part of the National Capital Territory of Delhi. The reason for picking these cities is because 80% of the observations in this dataset belong to these three cities. The data subsetted to contain only restaurants from these three cities has 7671 observations.

This dataset was further cleaned to remove restaurants that are inside hotels or in amusement parks. These restaurants were removed because they do not face the same market forces as stand-alone restaurants. Restaurants in hotels are protected against shutting down, they usually stay open longer, can serve alcohol on ‘dry days’ (religious days when no alcohol is allowed to be served across India (Mirror, Mumbai)) and are comparatively more expensive than stand alone restaurant which incorrectly skews the price distribution. Restaurants without any ratings were also removed from this data. Post preprocessing the dataset contained 5566 observations.

## Feature Engineering

A cuisine parameter was added to distinguish between restaurants that brand themselves as single and multi-cuisine. This parameter was added to evaluate the impact of a restaurant marketing itself and single-cuisine compared to multi-cuisine.

## Results and Discussion

This paper uses the Pearson Product-Moment Correlation to check the association of online booking and online ordering with restaurant rating. The formula for the correlation coefficient is:

where

* is the mean of X
* is the mean of Y
* E is the expectation

This analysis found that there is a strong correlation between the number of votes given to a restaurant and the restaurant rating (Fig 1). This dataset does not contain rating submission timestamps which could be used to argue that more votes cause higher ratings. However, since Rating users are 25 percent more likely to consult peer reviews than reviews by professional food critics it does benefit restaurants to encourage positive online reviews. Furthermore, looking at the ‘Rating Text’ data shows that most number of ratings are given to ‘Good’, ‘Very Good’ and ‘Excellent’ restaurants (Fig. 2). This implies that users are rating restaurants that they enjoyed visiting and/or ordering from.

The data also shows that online delivery is very weakly correlated to aggregate restaurant rating with a correlation of 0.09. One of the reasons for this weak correlation could be that Zomato charges a 10 percent commission to restaurants for online deliveries (Goyal). The restaurants are possibly charging their customers this commission by adding it to their final bill as a delivery fee.

However, online table booking and aggregate restaurant reviews are significantly correlated. According to OpenTable 88 percent of users use technology to make restaurant reservations (Srinivasan 8). This is expected because booking a table online is very convenient for a user. It helps the user avoid waiting in line for someone to answer and also provides an almost immediate response to their query.

Furthermore, there is a weak correlation between multiple cuisine restaurants and restaurant rating. Ratings are not impacted by whether the restaurant is single or multi-cuisine so restaurants should not feel the pressure to add more cuisine options to their menus to improve ratings.

## Conclusion and Recommendations

When deciding on where the dine out or order in from users turn to restaurant discovery and review services like Zomato. Since restaurant ratings on Zomato and similar services can impact a users dining decision, restaurants would benefit from improving their ratings. The data in this study show that more reviews and allowing online reservations has the most significant impact on a restaurant’s rating.

Restaurants looking to improve their rating on Zomato should try and incentivise their customers to leave a rating. Since it is not mandatory for users to leave a written review with their rating it should be easier to convince customers to perform a one-step action.

## Works Cited

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## Appendix



